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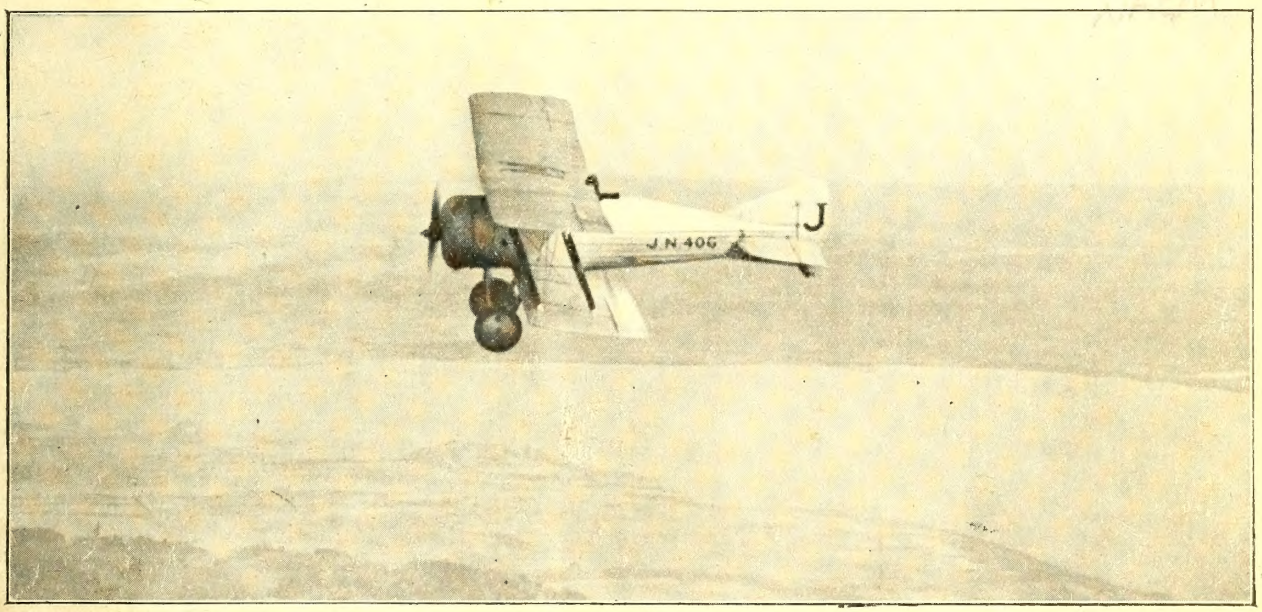
THE AEROPLANE

Edited by C. Grey

WEDNESDAY, JULY 5, 1922.

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THE "SPRAWK."



JAPAN'S CHIEF FIGHTING AEROPLANE: The "Sparrowhawk," a modified version of the "Nighthawk," designed by Mr. H. P. Folland and built by the Gloucestershire Aircraft Co., Ltd. The machine is here seen being flown at Kasimagaura, the big Japanese Naval aerodrome, by Mr. Vaughan Fowler.

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JULY 5.
1922.

THE AEROPLANE

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ON THE RE-EQUIPMENT OF THE R.A.F.

Judging by the attention which has been given to air affairs in the daily newspapers of late it would seem that the British public is taking more than usual interest in the subject. In some curious way the dwellers in the purlieus of Fleet Street gauge public opinion and only deal in such subjects as interest their readers. They hardly ever try to guide their readers in the way they should go. They are merely shopkeepers who supply a demand.

The most they ever do in the way of guiding public opinion is to give away a few free samples of new goods. If those samples are approved—in their case by letters to the editor—then they make a front window display of their latest line. Hence the recent large sale of leading and misleading articles on Air Power.

These articles now appear to be out of fashion and about to be replaced by a fresh display of full length and occasionally double width lines of Dublin Battles and Sales of Honours, both of which have a louder pattern than R.A.F. or Civil Aviation affairs and will probably occupy the front window while the aviation remnants are returned to the top shelf. Nevertheless considering the fickleness of newspaper fashions aviation has had a good show and, though it is not perhaps so popular a subject of conversation as was cretonne last summer or even crêpe marocaine this year, the standard type man-on-the-bus is quite ready to discuss Air Power with some approach to intelligence.

You see, many of him have seen aircraft at work in France and still more have been bombed in this country, and most of him are intelligent enough to know that there is no end to war. Consequently he realises that a strong and properly equipped Air Force is as necessary to-day as a strong and efficient Navy was in the past. And the recent newspaper exposure of the job-line or disposals-board state of the R.A.F. has rather disturbed him. For the man-on-the-bus is by no means such a fool as his newspapers make him out to be.

Cabinet Decisions.

So far as the recent agitation was concerned, it was quite easy to take the right line. When he introduced the Air Estimates Captain Guest said that the R.A.F. was carrying-on with "re-conditioned" machines and that in future years the Votes for matériel would have to be heavier. Later on Mr. Chamberlain, as Leader of the House, announced that to the R.A.F. had been committed the defence of this country against air attack, with the Navy and Army as its subordinates—which amounted to appointing the R.A.F. definitely to the position of our First Line of Defence.

After that it became more or less common talk among Service people that the Cabinet had decided to increase next year's Air Estimates by £5,000,000 and the following year's by £10,000,000. The figures might not be strictly accurate but it was evident that the principle had been admitted. Also the Navy began running round in circles and biting, so it was evident that the Admiralty was scared to death by the coming importance of the Air Force, and the Army, instead of becoming excited, began to talk quietly about co-operation with the Air Force and to practise co-operation in the most friendly spirit. So it came about that some two months ago all doubt about the future of the Air Force was set at rest and it only became a question of when the R.A.F. was to be made into a force capable of tackling its immense responsibilities.

Naturally then it was good business for all sorts of newspapers to start an Air Power agitation so that when the Government fulfilled its already fixed intentions the said newspapers could turn to their readers and say:—"Behold what we have forced the Government to do for you. We have secured for you safety against attack from the air." That time has not yet come, but in due course we shall see the daily Press patting its own back as indicated.

The Increase of the R.A.F.

In the meantime the agitation has done good, for it has made things easier for those intelligent members of the Government—notably Mr. Churchill and Captain Guest—who realise that Air Power is essential to the continuance of the British Empire. If they were to put an extra £5,000,000 on next year's Air Estimates without warning there would be an outcry against their extravagance. When they put on that or a greater sum next year they will now be able to demonstrate conclusively that they have only done so unwillingly under pressure from the Taxpayer himself and herself. Also, if they act quickly while the agitation is still within the short memory of the British Public they may actually be able to work in something of an increase this year by means of a supplementary estimate.

On Sunday of last week one paper stated definitely that eight squadrons are to be added immediately to our Home Defence establishment and a day or two later another paper increased the amount to ten squadrons. Eight or ten squadrons are neither here nor there in comparison with the 200 or more French squadrons to which Lord Weir referred so wittily in his speech at the Royal Aero Club Banquet (*which see*), but they would be a step in the right direction, for *l'appetit vient en mangeant* and the formation of eight squadrons this year will make it all the easier to raise eighty squadrons within the next few years.

Also, though some of one's friends in the Aircraft Trade may disagree, it will be better in the end to form those squadrons now and get the personnel into shape and get the pilots into practice with the obsolete machines of which the R.A.F. owns so many thousands, than to begin at once ordering new machines in large quantities to re-equip the existing squadrons of the R.A.F. The reason is that the Trade has at present no new machines which are fit to be standardised as R.A.F. types. Therefore it will be better to enlarge the R.A.F. to a certain extent and then equip the enlarged Force with new types of machines than to begin by producing in quantities machines which are actually very little better than those which were in use during the War.

Our Present Unfitness.

Let us consider what it would mean if we started re-equipping at once.

We want a single-seat fighter to replace the "Snipe." The only thing we have got is the "Nighthawk," which in fact is nearly as obsolete in type as the "Snipe" itself. There are hundreds of "Nighthawks" in store at Leuchars or elsewhere. They are all built of war-emergency material, timber which would never be passed for use to-day. They all have "Dragonfly" engines which are useless because they are unreliable. To recondition the machines themselves would cost almost as much as building new ones. And they would all have to be fitted with Siddeley "Jaguar" or Bristol "Jupiter" engines, which ought to be used in aeroplanes specially designed for them. Also there are pilots who want a single-seater developed from the Gloucestershire "Bamel," as a reply to the Nieuport.

We want a two-seater fighter to replace the Bristol. All we have at the moment is the Westland "Weasel," itself several years old as a design. It is useless to standardise a design of such age, and its makers can now offer a better design.

We want a long-range bomber to replace the D.H.9a. The only machine of this type in sight is the Avro "Aldershot" which did well at the Pageant. But it is admittedly not yet ready for standardisation. Its makers know that it can be improved. Also the Rolls-Royce "Condor" engine is not fully developed. Moreover, Mr. Rowledge the new designer for the Rolls-Royce firm has still newer types in hand, so it may be that the firm would prefer to drop the "Condor"—which is after all a war-time design—and offer something which they themselves think better.

We want big twin-engined or multiple-engined machines. The D.H.10. demonstrated at the Pageant what can be done with the type. Probably the Boulton and Paul "Bourges" would do for two or three years to come as a stop-gap, but that design also dates back to the War and the B. and P. firm can by now do better still. Also there are Mr. North's experiments in all-metal construction to be considered. And we need big bombers with a couple of 1,000 h.p. engines.

We want new seaplanes. The existing Faireys date back to 1917 or so. The Fairey "Pintail" amphibian is the highest development of this type up to the present, but it is a 1919 design and Mr. Fairey himself can beat it. Also Short Brothers can now do better than they did during the War. In small flying boats the Supermarine Company and Vickers, Ltd., are the only producers of the type and there is still much to be done in big flying boats, for the big four-engined Shorts, Faireys and Vickers types are all of War-time design.

Also there are slotted and variable-cambered and high-lift wings to be considered. These must be developed to an enormous extent before we can think about re-equipping the R.A.F. with standardised aeroplanes.

As to engines, one has already mentioned the "Condor," but there are many others which must enter into calculations. The Napier "Cub" has to be tested in the air. The "Jagnar" has to pass its type-tests. The claims of the Bristol "Lucifer" to replace the Le Rhône and Mono-Gnôme as the standard training engine have to be investigated. Altogether it is absolutely impossible to think about re-equipping the R.A.F. with engines or aeroplanes of standardised types. Designs and the ideas of designers are changing as quickly to-day as they did during the War and before it. We do not even know whether our machines should be cantilever monoplanes or braced biplanes or cantilever biplanes. Consequently if the R.A.F. is ultimately to be equipped with the best possible machines those responsible for Supply and Research and Equipment must recognise that the whole question of design is more than ever in a fluid state. They must revolutionise entirely the dilatory and ultra-scientific methods of those sub-departments which deal with tests and experiments and research.

The whole method of equipping the R.A.F. will have to be altered and premature attempts to standardise types will have to be squashed firmly. It must above all be remembered that standardisation is the enemy of progress.—C. G. G.

(To be continued.)

ON THE ROYAL AERO CLUB BANQUET.

The Royal Aero Club held its Coming-of-Age Banquet at the Savoy on Tuesday, June 27th, with its President, the Duke of Atholl, in the Chair. Nearly 200 members and guests were present and altogether the gathering was quite reminiscent of the good old days before the war. So important was the subject-matter of some of the speeches that one has felt it necessary to deal with them at greater length than have any of the ordinary newspapers. Moreover, the ordinary newspaper generally succeeds in omitting the more subtle points of a speech in elaborating those of little import. Hence this lengthy account of the proceedings.

Lord Gorell's Few Kind Words.

After the usual Royal toasts and a sympathetic reference to the late Sir Henry Wilson by the Duke of Atholl, Lord Gorell, Under Secretary of State for Air, proposed the toast of the Royal Aero Club. He said that Captain Guest, the Secretary of State for Air, had been detained in the House of Commons by important affairs connected with beer, and that as apparently the proceedings of the Lords did not matter he had come along to deputise for him.

He assured those present that there was no need for serious depression about aviation. The independence of the R.A.F had been confirmed and the defence of the nation had been committed to its care. The air was gradually becoming an element which none could disregard. He felt that he could defend the Air Ministry successfully even under the critical eye of General Groves and the reproachful eye of Mr. Handley Page.

Twenty-one years in the history of the air was a long time, and the history of the Royal Aero Club covered that period. He said that in Elizabethan days there were supposed to be seven ages of man. In these days he thought there were three ages. There were the years up to twenty-one, when a boy was thinking of all the things he was going to do when he grew up, there was the period from twenty-one to fifty, when he did all the things that he ought not to do, and there was the period from fifty onwards, when he regretted what he had done. The Royal Aero Club was now entering on the second period. It was fitting that the new Chairman should be Lieut.-Col. Moore-Brabazon, who held the first aviator's certificate ever granted by the Royal Aero Club.

The Duke of Atholl's Reply.

The Duke of Atholl in his reply suggested that Lord Gorell did not deserve any sympathy for leaving the House of Lords, as he knew that the canteen there closed before dinner, and therefore had the more inducement to come to this gathering. He knew that Lord Gorell was approaching the age of regretting his misdeeds.

The Royal Aero Club was in fact the headquarters of British Aviation Referring to the subject of Air Power, he said that he could not understand how people could be so financially and strategically blind as to starve the Air Force. Those present, as a Club, also asked that support should be given to Civil Aviation.

Referring to the pioneers of the Club he reminded the assembly that Colonel McClean had done more for the Royal Aero Club than anyone else. He had bought the ground which is at present the R.A.F. aerodrome at Eastchurch and had let it to the Club in 1909 at a rental of a shilling a year The Duke then indulged in reminiscences of the early days at Eastchurch, when flights were measured in seconds and occasionally in minutes, and when "body-snatchers" were placed in advantageous positions, but never more than a few hundred yards from the starting point. One may here remark that he did not make any reference to the fact that he himself, when Marquess of Tullibardine, had spent some tens of thousands of pounds on financing experiments which had as their object the discovery of an absolutely stable aeroplane.

In conclusion he expressed the gratitude of the Club to His Majesty the King for presenting what would be known as "The King's Cup" to the Club for the next big competition. One may presume that the King's Cup will not be put up for competition until such time as the Aircraft Industry has orders in hand from the Air Ministry which will enable it to build new types of machines specially to compete for this important prize.

Lord Weir's Wit and Wisdom.

The Lord Weir of Eastwood said that after Lord Gorell's remarks he was not going to tell anyone his age, but he felt he had an awful responsibility. There was one section of the Press which was always saying that British Aviation was practically dead, and that it was being ruined by hopelessly unintelligent and narrow-minded people, such for example he supposed as the Secretary of State for Air, the Chief of the Air Staff and the Director of Civil Aviation. And after that he was asked to say what he thought of it in half-an-hour, and with ladies present. Some of the critics seemed about as well informed as the lady who was asked what had won the Derby, and who replied that she had forgotten the horse's name, but thought its caddie's name was Donoghue.

He said that three difficulties militated against our air policy. Firstly, the impatience of the people concerned, secondly the immensity of scope of the subject, and thirdly the sensational nature of the appeal to a purely surface view of the subject. There was no subject of to-day which attracted more attention.

The attention of the Press to aviation was periodic, but it always worked for good. At present we seemed to be on the crest of one of these waves. The criticism was usually uninformed, frequently futile and sometimes arrant nonsense. At present it showed that the R.A.F. was dangerously weak as compared with France, that we were not spending enough on Civil Aviation and that the British Aircraft Industry was practically ruined.

Personally he held the profound conviction that the country which led in the war would continue to hold the first position. He certainly was anxious about our air policy, and he said that the air should have its proper consideration in all questions of defence, but actually it was a minor question. There was only one great problem, and that was, that we had one-and-a-half-million workers out of employment. If that problem were solved the solution of air problems would be as easy as writing a leading article on the air.

As to the cry about France having 250 squadrons for home defence while we only had two, he believed that we should always be tied to France and he refused to conjure up the word "menace." He felt sure that his good friend M. Flandin, who was present, would understand him when he said that he preferred to recall the fact that France owed us £500,000,000 without paying interest, and that if one assessed the interest on that sum at £25,000,000, we ourselves were in fact paying for those 250 squadrons.

A Pertinent Parenthesis.

Here one would like to congratulate Lord Weir on the amazing boldness of this statement, which cannot possibly be disputed, even by the very best friends of France. One can only hope that France is spending this £25,000,000 per annum which she owes us on her Air Force as wisely as our Air Ministry would spend it if we had it in this country. If the Russian Napoleon does arise as soon after the Russian Revolution as Napoleon Bonaparte arose after the French Revolution, it is to be hoped that some of those numerous French squadrons will be lent to us for Army co-operation against the Russians. If the Russian Revolution keeps anywhere near the time-table of the French Revolution it is obvious that we cannot have an adequate Air Force in being in time to meet the Russian Napoleon. Also it is obvious that French squadrons

could never be induced to work with the German Army, which would be our chief Ally on the outbreak of such a war.

Apparently the only possibility would be a British Army Expeditionary Force in Poland for which the air work would be done by some of these numerous French squadrons. One can only hope that if such a time comes within the next ten years the French Service d'Aviation Militaire will not be merely remarkable for quantity but also for quality. One has painful recollections of that terrible period in November, 1917, when in spite of the enormous size of the French Service d'Aviation and the enormous output of the French aircraft factories the French had in fact barely fifty aeroplanes fit to cross the lines.

It is just possible that a Polish Army stiffened by British troops and served by French aircraft might stand off the Bolshevik advance long enough for the British and German aircraft factories to build an air fleet capable of finishing the war. But one would prefer to have that £25,000,000 per annum to spend on building and manning the British Air Fleet.

One has no faith in Poland as a military Power and still less as an air Power. It is always well to remember that during the recent war between Poland and Soviet Russia some 300 of Budenyi's famous Red Cavalry tried to surrender because they thought they would be better fed as prisoners in Poland than as soldiers in Russia, and it took them three weeks' hard riding before they could find a Polish Army which would stand in front of them long enough for them to explain that they wanted to surrender.

Lord Weir on Economy and Economics.

Continuing Lord Weir pointed out that it was much cheaper for France to raise air equadrons than for us. The French mechanic was taken from his bench as a conscript and as a ready trained man drew 2s. 6d. a week pay. We took a boy, sent him to one of our R.A.F. Schools of Training, spent £700 on his education and then paid him 25s. a week.

He said that the Service votes should not be considered separately for the three Services, they should be considered as an economic whole. If this were done he would have no fear for the R.A.F. In any calm and dispassionate consideration of the subject of defence the air would justify itself. The existence of a separate Air Service was justified by the fact that under the present system the Government did at any rate have the case for the air properly presented to it.

He was convinced that Service Aviation should be considered quite apart from Civil Aviation. There was nothing to warrant the assumption that Civil Aviation could give effective assistance to the Air Force. Commercial aircraft would differ from war aircraft as the *Mauretania* differed from a battleship. The commercial aeroplane would come in due time. The success of the motor 'bus only came after ten years. When the commercial aeroplane became an economic success it would be less and less of use for war.

All sound business depended on private enterprise. At present the load factor of our Air Lines was too low and the community did not use what aeroplanes we had got. The countries in which Air Lines were most active were countries poorer than our own. The announcement of a Warsaw-Moscow Air Line left him cold. If the Russians had money or could borrow money they should spend it on repairing their railways or growing potatoes. The success of Civil Aviation was still a matter for the technician and the engineer.

Other industries more important than the Aircraft Industry had suffered equally from the War, but the great ship-building firms were not calling out for Government subsidies, and as a matter of fact he heard very little whimpering from the Aircraft Industry itself.

The R.A.F. Pageant showed that the R.A.F. were no fair-weather birds, but the R.A.F. could not live much longer on old war machines. He had no fear about the re-equipment of the R.A.F. if it were given fair judgment as an arm of defence.

Summing up, he said that he believed in the expansion of air routes, and in the support of aeronautical research, and in the active replacement of old machines in the R.A.F.

Royal Good Wishes.

Following Lord Weir's speech the Duke of Atholl read a telegram from His Majesty the King, thanking the Royal Aero Club for a loyal message which had been sent to him at the beginning of the dinner and wishing the Club all success in the future.

Our Distinguished Guest.

Monsieur Flandin, formerly French Under-Secretary of State for Air, himself a pre-war pilot and one of the pioneers of French aviation, wished success to the Royal Aero Club on behalf of the French Aero Club. He hoped that though the assembly might misunderstand the words of his lips they would understand the language of his heart. (As a matter of fact M. Flandin speaks very much better English than do the vast majority of Englishmen.)

M. Flandin said that French and British aviators were bound together by the love of the same girl. This was usually a cause of disagreement, but in this case the girl was a star and they must help one another to reach her.

As to Government support of aviation, the British Treasury was no more generous than his Minister of Finance. He himself had always worked for Franco-British co-operation. Both nations were fighting the same enemy. The present conditions were comparable with those of early motoring.

He regretted to see so many criticisms of the French Civil Aviation Regulations and assured those present that the French were just as anxious as the British to produce reliable aeroplanes.

The Views of the Services.

Vice-Admiral Sir Roger Keyes said that so long as aircraft returned to earth or to sea-borne vessels the Air Force could not replace the Navy and Army but he agreed that the Air Force was the central defence. As a member of the Board of Admiralty he said that the Admiralty was alive to the importance of efficient Naval air units.

Lieut.-General Sir Travers Clarke, Quarter-Master General at the War Office, said that the Army appreciated the airman, but he was just a little afraid that the airman did not appreciate the Army and the land gun. He understood that the United States contemplated an Army in which every man could fly on a single-seater aeroplane. And he left his audience to consider the problem of the particular branch of the Army to which each man would belong under those circumstances.

Air Chief Marshal Sir Hugh Trenchard, Chief of the Air Staff, said that those who flew at the R.A.F. Pageant showed how efficient the R.A.F. was in spite of its old machines. He recalled that he had said recently in public that he would not be human if he did not like some of the criticisms levelled against the R.A.F. on account of its small size. He would like to repeat that statement then. He assured those present that every pilot in the R.A.F. wanted new machines.

An Ancestor of Aviation.

Lieut.-Colonel Moore Brabazon, the new Chairman of the R.Ae.C. (who still insists on looking about 25 years of age), in proposing the health of the Duke of Atholl, said that the worst of being a pioneer was that he felt when he had to speak on such occasions as this that he ought to rise with a bald head and a long white beard amid a chorus of the now popular word "Beaver." He admitted that he belonged to a pretty old vintage of Committee-man and presumably it was for that reason he had been elected Chairman. (Cries of "No!")

Referring to Sir Hugh Trenchard he said that he had been told in Parliament how "our beloved Chief, Boom," as he called him, had fought for aviation and for the R.A.F. He believed that the battles which Sir Hugh had fought in the War were no more strenuous than those which he had fought since the War for the progress of aviation.

Aviation had certainly advanced of late years. In its early days it had been looked after by the Aero Club and now it was being looked after by the Air Ministry. A cynical friend of his had made some remarks on aviation which he felt that he ought to quote. His friend had said that in the early days we had no air power, now we were a third-class power in the air: in the early days we had no Civil Aviation, now there was an Air Line from Berlin to Moscow: in the early days we had no research, now the Authorities seemed to think that they had no more to learn. The man who made these remarks was still in hospital, but nevertheless they were worth considering.

He confessed to being a little disappointed with those in power and felt that it was necessary occasionally to give them a push. He then referred to the excellent service done to the Club by the Duke of Atholl, who had been known to aviators for so long as Lord Tullibardine.

A Suggestion.

Altogether the R.Ae.C. Banquet was a very decided success. These gatherings of past and present aviation people are always of very great interest, and though the speeches are invariably both interesting and entertaining it always seems rather a pity that there is little opportunity for meeting and talking to one's friends. One would like to suggest that the Royal Aero Club Committee might consider at a later date holding dinners without any speeches at all and devoting the rest of the evening to a kind of conversazione, with or without dancing.

Probably three such gatherings between, say, the beginning of September and the end of April would be very well supported. At any rate the Committee of the Royal Aero Club, and especially its energetic Secretary and Assistant Secretary, Messrs. Harold Perrin and B. Stevenson, deserve cordial congratulations on their success.—C. G. G.

R.A.F. INTELLIGENCE.

The R.A.F. Pageant.

It seems that the R.A.F. Pageant was distinctly more of a financial success than seemed likely considering the weather. Under the circumstances it seems more certain than ever that the British public is really interested in flying. Though the number of people present was considerably less than the previous year it was sufficiently large to show that people will come to see flying in any sort of weather.

The only accurate figures available are those for money actually taken at the gates of the various enclosures. At the 10s. enclosure 2,867 people paid for admission, these being in addition to the still greater number who had bought their tickets beforehand. At the 5s. enclosure 5,968 people paid for admission and there again a great many additional tickets had been bought in advance. In the 2s. enclosure 11,699 people paid for admission. These give a total of 20,534.

Advance bookings were something well over £1,000 and the total bookings were something over £4,500, so it may be estimated that somewhere about 25,000 people were present, which is really quite good considering the weather. Fully 1,000 cars were counted in the enclosure.

In addition to the people actually in the aerodrome 8,000 more watched the show from the Church Fields on Hendon Hill and the receipts from these realised £140 for the R.A.F. Memorial Fund. It may be taken that whatever happens to the weather in the future the R.A.F. Pageant can at any rate be relied upon to pay for itself.

The R.A.F. Dinner Club.

Past and present officers of the R.A.F. who are taking an interest in the R.A.F. Dinner Club are asked to address letters in future to the Secretary of that Club, c/o the National Provincial and Union Bank, 61, Victoria Street, S.W.1, and not to Room 651, The Air Ministry. It is rumoured that the staff of that room, as the result of their strenuous but eminently successful labours before the R.A.F. Pageant Dinner, are suffering from nervous prostration. In any case the Committee will use the Bank's address in future.

Officers who were at the R.A.F. Pageant Dinner and who have not yet sent in their subscription of 10s. to the Club are asked to do so as soon as possible, and they as well as the officers who have already paid their subscriptions are earnestly requested to spread the news of the existence of the R.A.F. Dinner Club among their friends in or formerly in the R.A.F. It is hoped thus to get together for next year's Pageant a gathering at least twice as big as this year's Pageant a gathering at least twice as big.

The R.A.F. Club Cricket Week.

All those who are interested in sport will be glad to hear that the organisation of the Royal Air Force Club Cricket Week which is to take place at Eastbourne from September 20th to 26th inclusive is proceeding highly satisfactorily. Two first-class three-day fixtures have been arranged, namely, a "North versus South" match on September 21st and 22nd, and an eleven of past and present members of the R.A.F. (raised by the R.A.F. Club) versus the Rest of England, or a similar team, on September 23rd, 25th, and 26th.

Apparently a certain amount of objection has been raised to the Club running this Cricket Week on the grounds that other Service clubs have not done anything of the kind and that as professional cricketers who formerly served in the ranks of the R.A.F. during the War will be playing for the Club the effect will be prejudicial to R.A.F. cricket as such. Just how any harm will be done is a trifle hard to see. In the first place, the Royal Air Force as a Service has nothing to do with the affair, which is being promoted and organised purely by the R.A.F. Club. In the second place, as other ranks habitually play football and cricket in the R.A.F., one cannot see why those who formerly served in the ranks of the R.A.F. should not play for the R.A.F. Club if asked to do so, and obviously they cannot play for nothing.

One is given to understand that if by any chance there should be any profits they will be devoted to charities, such as the Royal Air Force Memorial Fund.

The Committee realises that the R.A.F. Club is creating a precedent in holding this affair, but it is just as well to remember that the R.A.F. itself is a Service without precedent, and that the Club does various things which are certainly without precedent in Service Clubs. For example, one does not know of any other Service club which owns a ball room and gives dances, nor does one know of any other Service club in which the dining-room for women guests is a section of the main dining-room.

One quite agrees with the Committee's belief that the Eastbourne Week, if it should be favoured with fine weather, will prove to be an event which will enhance the reputation of the Club among sportsmen and will very probably bring into the Club a number of former R.A.F. officers who have hitherto been under the impression that the Club was a solemn and depressing Service club, existing merely for the sake of eating and drinking, and not, as it does, to promote the joy of life among its members and their friends.

In this connection it is interesting to know that during the Eastbourne Week two big dances are being organised at the Grand Hotel at Eastbourne.

Altogether one believes that if a good show is put up by the R.A.F. Club team at Eastbourne it will do a great deal to impress on the better class people in this country the fact that the R.A.F. has at one time or another included among its officers and other ranks some of the finest practitioners of what is after all one of the cleanest of all sports.—C. G. G.

The Claim for the Refund of Gratuity.

Ex-officers of the R.A.F. who are still being threatened with legal proceedings for the recovery of an over-issue, or alleged over-issue, of gratuity by the firm of Agents who are themselves responsible for any mistake which may have occurred in this particular matter, are requested to communicate with the Editor of The Aeroplane.

It is still doubtful whether the claim so made is in fact legally enforcable, and so far the firm of Agents concerned have not actually taken any such claim into court.

The preliminary steps to that end have been taken in one case, and the firm of solicitors acting for the Agents have notified certain officers that they do not propose to act further in the matter until that case has been heard.

AN ANNIVERSARY.

The following letter deserves particular attention:—

Sir,—I think few, if any, people know what happened on the 4th July ten years ago. The first flight was made over London. Edward Petre started from Barking on a Handley Page fancifully christened the "Antiseptic." Following the the line of the river for several miles he arrived at Brooklands.

Do any of us realise what we and the country owe to the Pioneers of Aviation? Where should we have been during the War had it not been for their untiring energy.

Edward and his elder brother, known in those days as "Petre the Monk" and "Petre the Painter," worked with many others night and day for the public welfare. Their one and only thought was for England to lead the way before all other Powers in the command of the air and with this ideal they were content to risk their lives.

Edward Petre was killed at Marske in Yorkshire. He had left Brooklands for a non-stop flight to Edinburgh. All went well until he reached the Yorkshire coast when the storm which had been gathering met him with full force. After a marvellous fight for life he might have effected a safe landing, but fearing that he might injure some children who were at play, he made one more ascent into the raging storm and was dashed to the ground—on Christmas Eve, 1912.

To me it seems strange that no memorial has been erected to commemorate these gallant young lives at Brooklands. They were all pre-War victims for they knew that sooner or later War was inevitable.

I asked Petre once if it was not dreadful all these brilliant lives being sacrificed to no purpose and he replied that the deaths were not useless, every crash taught aviation a fresh lesson. In this humble and unselfish way these splendid youths rejoiced to give their lives for King and Country.—(Signed) "One Who Knows."

PERSONAL NOTICES.

Death.

GREGORY.—On June 21st, at Hong Kong, Reginald Gregory, Lieut.-Cmdr. R.N., H.M.S. *Tamar*.

Reginald Gregory was one of the first four officers under the Admiralty who learned to fly, when they were taught at Eastchurch by Mr. G. B. Cockburn on Short aeroplanes lent by Mr. Frank McClean. He was the senior officer of the four and so was in fact the first O.C. Eastchurch. He became an excellent pilot and showed most remarkable organising ability. Everybody had a sincere affection for "old Grégoire," as he was commonly called, in fact one doubts whether he ever had an enemy in the World except himself. During the War his health unfitted him for R.A.F. duties and he returned to the Navy. His name will recall to the older officers and men of the R.A.F. and to some civilians many happy days spent with him in the great early days at Eastchurch.—C. G. G.

Marriages.

FELLOWES—OSWALD.—On June 22nd, at St. Nicholas' Church, Stevenage, Maj. Cuthbert D. Fellowes, M.C., A.F.C., second son of Rear-Admiral Sir T. H. B. Fellowes, K.C.B., D.L., of Stevenage, Herts, to Margaret Bogle, widow of Lieut.-Cmdr. Donald Oswald, R.N.

ROBERTS—LLOYD.—The marriage arranged between John Vaughan Roberts, R.A.F., and Mary Constance, daughter of Brig.-Gen. and Mrs. J. H. Lloyd, of Queensbridge, Ellesmere, took place on July 4th, in Ireland.

Births.

BALLARD.—On June 14th, at Goldfield Mill House Tring, Herts, to Betty, wife of F/O M. Ballard, R.A.F.—a daughter.

MACKWORTH.—On June 5th, at St. Andrew's, to the wife of F/O P. H. Mackworth, D.F.C.—a daughter.

MARSHALL.—On June 25th, at New End Square, N.W.3, the wife of S/Ldr. G. Struan Marshall, R.A.F., M.S.—a son.

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England to **MADRID**	... 855 miles...	D.H.4 Aeroplane Rolls-Royce "Eagle" Engine
England to **WARSAW**	... 1050 miles...	Handley Page Aeroplane Rolls-Royce "Eagle" Engine

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THE WEEKLY COMMENTARY.

Reflections—irreverent and otherwise—suggested by certain of the speeches at the Royal Aero Club's Coming-of-Age Banquet are the subject of the article which appears below.

Optimism is a useful quality in times of adversity, and it is hoped that these reflections will help to keep Optimism alive for the short interval which must yet elapse before the Aircraft Industry enters upon a stage of steady progress.

An account of the extremely fine performance of the Bristol "Jupiter" air-cooled engine on the occasion of its French type trial tests, is given in this issue. It is understood that the "Jupiter" is the first and only engine of any type which has successfully passed this test in its present form.

Illustrations of and notes on certain interesting new foreign developments will be found on page 10.

The Fokker seaplane is obviously an entirely new design and not a standard machine on floats. The little Entler two-seater is interesting in itself. Still more interesting is the appearance of a new aircraft manufacturer in Germany.

The note on new German engines proves the futility of the restrictions imposed on the Germans by the Allies. They have not prevented experimental work, and the Germans are obviously ready to produce new designs as soon as they are needed. In this country experimental work is stopped for lack of funds—and in two or three years' time, we shall be as short of modern engine designs as the R.A.F. now is of modern aeroplanes.

THE PRESENT—AND FUTURE OF AVIATION.

It is very greatly to be hoped that many more than those actually present at the Royal Aero Club's 21st birthday feast will have and will take the opportunity to read certain of the speeches which marked that distinctly interesting occasion. Those who read THE AEROPLANE will certainly have the opportunity—and are not likely to neglect it—of acquiring a fairly accurate knowledge of the essence of the event and this is not the place wherein to report the speeches as such.

One may, however, legitimately draw a few morals. A guest at the dinner not very adequately seized of the general political conditions prevailing between the three armed Services was somewhat surprised at the tone of the remarks made by the distinguished representatives of the Navy and Army.

THE DIFFICULTY OF A GRACEFUL REPENTANCE.

Admitting that the words spoken were perfectly polite she was conscious that there was something of cordiality missing—and that on such an occasion cordiality seemed called for. But then cordiality is a strictly relative term—and at the moment the Air Force can afford to be satisfied. It is after all a very great thing to have it admitted that the Air Arm is an essential to the complete defensive system of the Empire—and there is no reason to be surprised if that admission is sometimes made with signs of difficulty. One may repent one's errors with entire sincerity and yet find it a little difficult to wear a white sheet in public—particularly if the repentance is of very recent date.

But the most important speech of the evening was Lord Weir's thoughtful analysis of the present position of aviation. It would have been very easy for him to have made a speech which would have fallen more pleasantly on the ears of many of those present. It would be very easy to criticise his speech in certain respects.

THE COMMON SENSE OF LORD WEIR.

For instance, one might say that his exposition of the relatively fortunate position of the aircraft industry—compared to, say, that of the great naval armament industry—was one easily to be made by the head of a firm more directly concerned with the state of shipbuilding than with that of aviation. One could point out that the naval armament concerns command so vast a capital that they can relatively easily turn their energies to other branches of industry and at least survive through such a slump as now exists in naval construction, and that anyhow the sight of companions in misery does not greatly mitigate the pangs of impending dissolution.

Such criticisms are really beside the point. His main thesis is absolutely true. A healthy aircraft industry cannot exist in a country which is in an economically unsound position. The world at large is short of necessities of all kinds—and England is no exception. An Air Force is a necessity—but one that we must go short of unless we are to sacrifice other necessities.

The problem resolves itself into one of compromise—it may be stated thus:—How can we establish and maintain the minimum necessary Air Force without starving ourselves of other equally vital needs?

ACCIDENTAL WISDOM.

The Government of this country has decided that at the moment a small Air Force, if it be but highly efficient and capable of expansion at need, will serve us. It is always somewhat difficult to arrive at the motives underlying a practical policy. One would hesitate to ascribe to any Government likely to be seen in this country for many years an intelligent basis for so complex a matter as Aerial Policy. But for practical purposes one may say that whether the politicians mean it or not they have pursued in aerial matters a policy of practical research.

The present Royal Air Force may be regarded at the moment as the greatest full-scale aeronautical research and experimental organisation in existence. Its business is to investigate the application of Air Power to the defence of the Empire. And it is doing its work exceedingly well.

And ordinary commonsense would indicate that under the conditions which followed the war, a research of this type should be initiated on as modest a scale as possible. The time has certainly come when the R.A.F. can say that some of the results obtained in its laboratory are ready for immediate development on the practical scale. That this is the case may be gauged by the admissions now made in every quarter that the Air Arm is an essential part of our national defences.

EXPERIMENTS RIPE FOR DEVELOPMENT.

That is to say that in certain very important respects practical exploitation of the results obtained in the research establishment may now begin.

It is perfectly true that events have proved that in certain main respects the expectations of those who have guided the Air Force have been entirely fulfilled and that the work of enlarging the Air Force might safely have been initiated at an earlier date That argument, however, applied to the particular case is unsound.

A firm making large profits may justifiably gamble on the opinion of an expert who has a reasonable and apparently feasible scheme for producing a new and valuable commodity at a price promising a large sale. If a firm is passing through a period of financial stress it will be wise before embarking on such a scheme to put it to laboratory tests.

Equally is Lord Weir right in regard to Commercial Aviation. Aircraft are not yet economically developed to a stage which

justifies a large expansion of civil aerial transport schemes. The problems of commercial aviation are even more in the research stage than are those of air war.

The policy of flooding the skies with any kind of aircraft which has been pursued at great cost and no profit in certain countries may produce imposing figures for the consumption of the man in the street. There is no evidence that it produces aircraft really useful for either peace or war.

British commercial aviation is at present carried on on a scale suitable for research purposes. British aviation was carried on on just such a scale before the war. The war caught us practically without an Air Force—but the results of our research work enabled us to produce the finest Air Force of the war—although other Powers started the war with a sum total of aircraft compared to which our strength in machines was despicable.

When Commercial Aviation is ripe for development we should be able to rise to the occasion just as we did during the war. The research period which is now proceeding is a trying time for many of those who have given their time, their money and their brains to the cause of aviation. It is abnormally trying because the war coming when it did interrupted the steady progress of research and in a large measure has retarded progress—and yet at the same time produced a period of unhealthy and artificial prosperity which makes it the more difficult to revert to poverty and to begin again at a point very close to where the work was interrupted now nearly eight years ago.

But nothing but a reversion to the pre-war process of hard work and careful experiment could avail to secure a really sound development of British Aeronautics. It is a little trying at times to look abroad at aircaft factories turning out large quantities of machines paid for in hard—if depreciated—cash, but it may help us to bear our present tribulations if we recollect that after all the subsidies which are being poured out with so liberal a hand in certain other countries are but a disguised form of unemployment dole. The sums now being spent on aircraft which do not and cannot earn their living merely in order to relieve the distress of the aircraft manufacturers represents in fact so much wasted capital. When commercial aviation begins to pay its own way, the aviation industries in the now heavily subsidised countries will have to pay interest on this dissipated capital before they can begin to pay dividends on their real working capital.

And a long period of existence supported by any form of unemployment relief is apt to dull the spirit of enterprise and self-reliance. The less the British aircraft industry has to depend on subsidisation for its existence the more ready it will be energetically and profitably to exploit air transport when commercial aviation becomes possible.—W. H. S.

THE JUPITER ENGINE'S FRENCH TEST.

Following the successful passing of the British Air Ministry type test for Aero-engines, the Bristol Co. have submitted one of the same type of "Jupiter" engine to the equivalent French type tests.

Previous to the type test, engine No. 821 had been manufactured under conditions complying with the directions of the Air Navigation Regulations, 1919.

The total number of hours the engine had run previous to the type test was 28 hrs. 17 mins., including 13 hrs. in England before being sent to France, and also the engine had done one 10-hr. non-stop period in France, in order to test out the French test stand.

The engine was a standard production type

The "Bristol" gas starter was used on every occasion for starting up the engine, and gave full satisfaction.

Arrangements for Test.

The power was measured on a torque—reaction stand, the power being absorbed by a tractor airscrew made by the Bristol Company, and calibrated by the British Air Ministry. Owing to the airscrew being a left-hand tractor, the slip-stream therefrom impinging on the cylinders caused a negative torque, and consequently the B.H.P. readings on the torque arm were appreciably reduced.

In every instance allowance has been made for this negative torque, and the B.H.P. readings shown in the test are the actual power developed after making allowances for the negative torque and barometric pressure.

Previous to the endurance test, a power curve and consumption curve were taken of the engine, which are shown, and a slow-running test was made of 15 mins. duration—the r.p.m. being 350—and the acceleration at the end was good.

Endurance Test.

The endurance test was made in five periods of 10 hrs. non-stop—12 hrs. stop being allowed between each test. Twelve hours' duration was exceeded in one case owing to the fact that when the test was started up, it was found that there was a stoppage in the main oil tank.

The five periods of 10 hrs. non-stop were carried out without any replacements whatsoever, and without any adjustment beyond lubrication and examination of sparking plugs.

This is the first time that this test has been carried out in 10-hour periods without any adjustments or replacements.

At the conclusion of the test the remarks on the official report were as follows:—

"The five tests of 10 hrs. were carried out without stop of any sort.

"Nothing to report. The engine behaved itself perfectly; there were no replacements of any sort in the course of the trials.

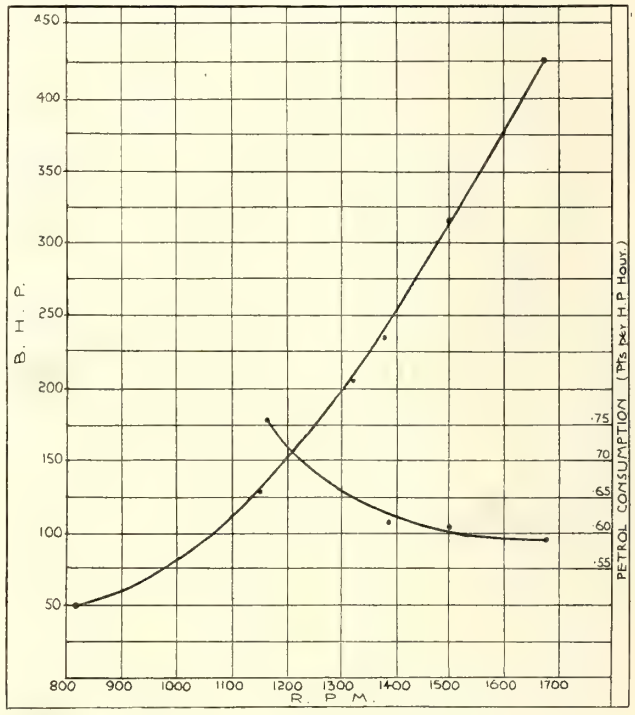
"It is regrettable that this test remains at 50 hrs.; this duration could have been doubled, which would have been a still better testimony for the engine."

Dismantling.

At the conclusion of the test, the engine was dismantled for examination.

The engine was in excellent condition throughout, and the highest satisfaction was expresed at the general condition and wear of the parts.

It should be noted that this test is in some respects distinctly more severe than the British test—which calls only for one 10-hr. run. Each of the French runs consisted of half-hour at full power and normal r.p.m. of 1,657, 9½ hours at nine-tenths of the power developed in the preliminary half-hour and a final short run to ascertain whether full power could still be developed. With one exception on each 10-hr. run the inspector's report reads: "Nothing to report; test excellent." On the fourth test the report is: "One plug broken after 10 mins. of preliminary test; test very satisfactory."



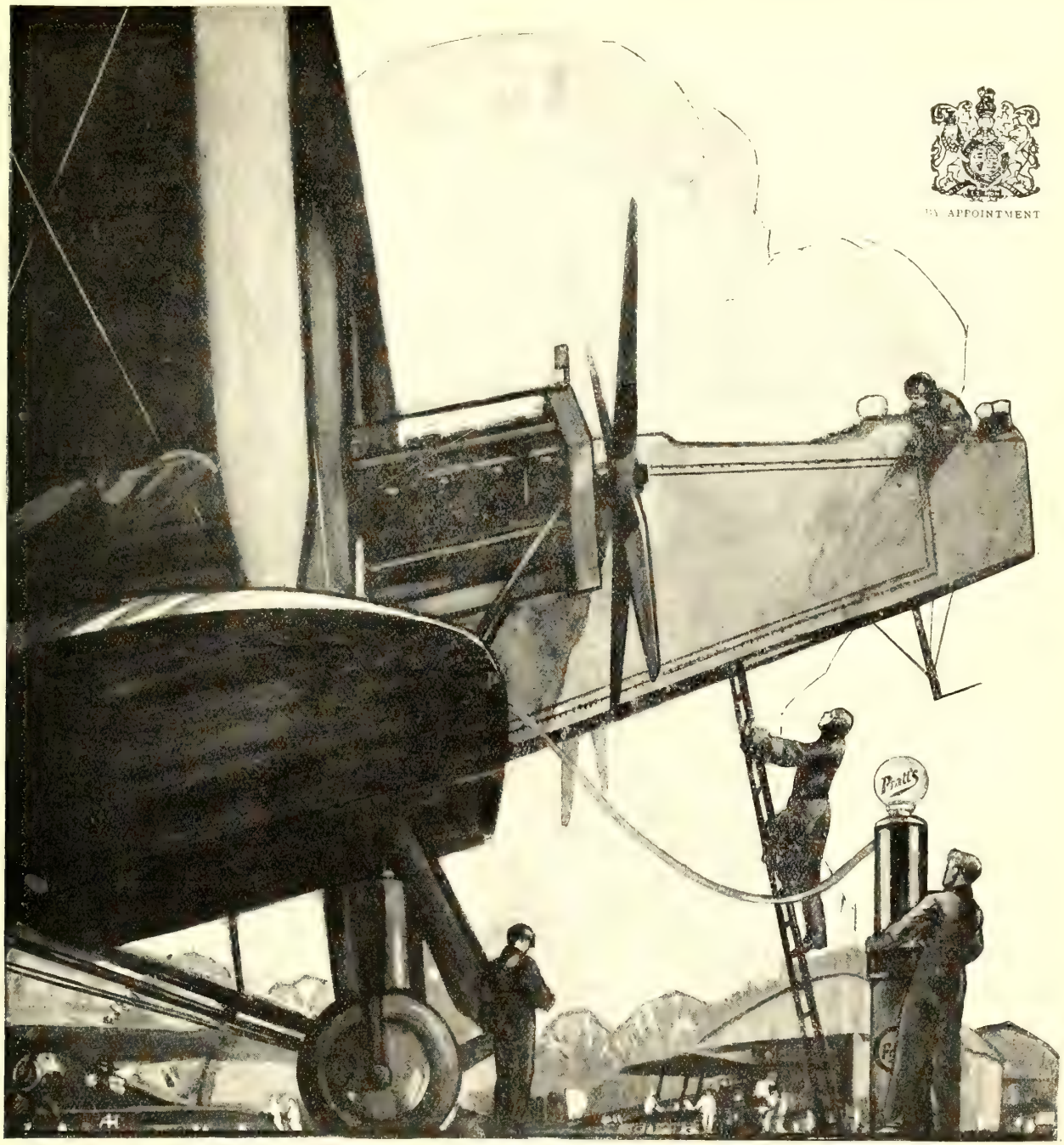
Tests started on June 12th with the determination of the power curve. The 10-hr. runs were made on June 12-13, 13-14, 14-15, 15-16, and 16-17—running through the night. The full power developed varied only from 398 to 418. Petrol consumption varied only from .65 to .678 pints per h.p. hour. The oil consumption was 1.32 galls.—10½ pints—a very remarkably low consumption for a 400 h.p. engine.

A FRENCH INVESTIGATION OF THE CHANNEL CRASH.

The relatives of M. Paul Carrol and of the pilot M. Morin, who lost their lives in the Spad crash on June 3rd, have brought a claim against the Messageries Aérienne on the ground that their deaths were due to imprudence or negligence on the part of some person unknown, inasmuch as the accident was due to a defect in the machine.

By order of the Examining Magistrate before whom the claim was preferred two eminent French authorities were instructed to discover whether the type of machine—a 300 h.p. Hispano engined Spad—would dive into the sea of its own accord. Piloted by Casale in a sister machine to that on which the accident occurred they have been satisfied that the machine would not dive into the sea unless the controls were forcibly held forward.

This evidence of course substantiates the suspicion that the pilot himself must have collaped onto the control.



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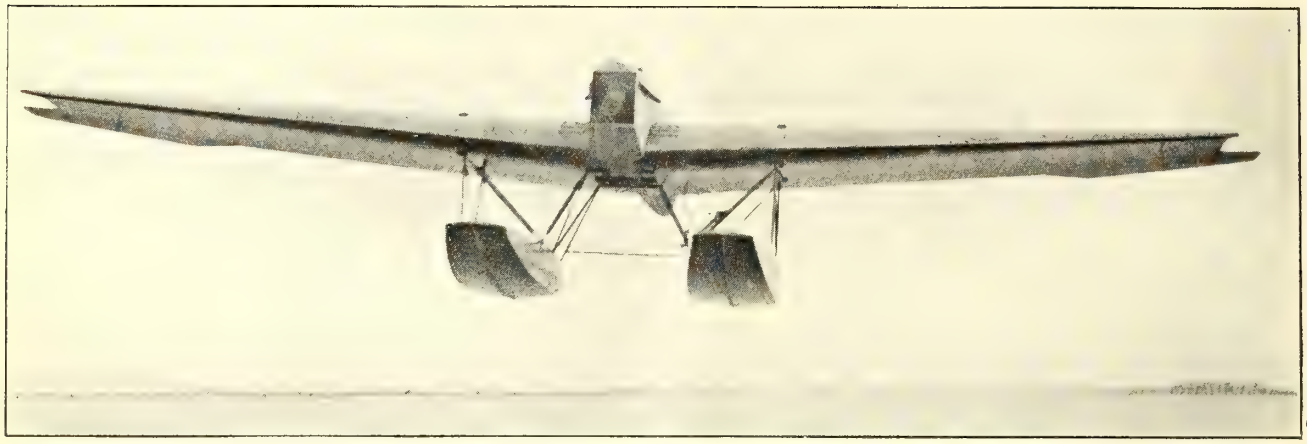
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NEW MACHINES AND ENGINES.



The Fokker F.W.1. Seaplane (400 h.p. Liberty engine). Note that for this machine the wings are low on the fuselage instead of on top as in the standard Fokker.

ANOTHER LOW-POWERED GERMAN MACHINE.

Two photographs are here reproduced of a small two-seater just produced by a hitherto unknown German firm, The Entler Werke of Wilhelmshafen. The designer, Herr Entler, has worked with Prof. Junkers—which possibly accounts for the corrugated sheet metal covering. His experience has also included work with the Sablatnig works and the Hansa-Brandenburg firm, and it is stated that the internal construction of this machine is novel and differs very considerably from the Junkers type. The machine is of the "sporting" type and is a two-seater. The first machine here shown is fitted with the two cylinder opposed "Haacke" air cooled engine of 30 h.p., which it is said does not allow the machine to develop its full performance. The designer proposes to fit a variety of engines according to the consumer's choice. Among those which he considers to be available is the 35 h.p. Green.

It is claimed that the all-metal cantilever construction will make it possible to produce the machine very cheaply. A price of 200,000 marks in Germany or £220 in England is mentioned.

With an average engine—type and power not specified—the machine is designed for a top speed of 130 k.p.h. and a fuel endurance of 10 hours. With the present engine a speed of 104 k.p.h. has been attained.

The wings are each built in one unit. Ailerons operated by rods inside the wing are fitted to the top wing alone. No control surfaces are balanced.

Dimensions, etc. are :—

Span, top	7 m.	Height	2.35 m.
Span, bottom	6 m.	Wing area	12 sq. m.
Chord, top	1.25 m.	Weight empty	170 kg.
Chord, bottom	1.0 m.	Total load capacity	225 kg.
Length	5.1 m.		

HI.

A SWISS-BUILT DORNIER.

The photograph here reproduced represents the latest version of the Dornier twin-engine boat—known as the "Wal" or Whale. The machine is a slightly modified version of the Do. G.s.II design which was described in The Aeroplane early last year. It is arranged normally to carry nine passengers.

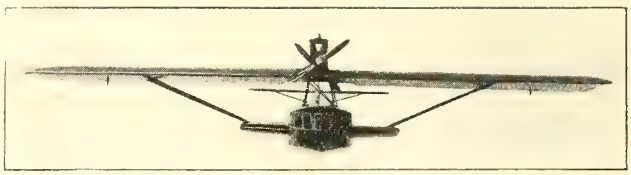
This machine is now built at the Swiss Dornier works at Rorschach. The machine can be built to take a wide variety of engine types—either two B.M.W. 185/230 h.p., two Maybach 260 h.p., two Hispano Suizas of 300 h.p., or two Napier "Lions" of 450 h.p. placed in tandem.

The main dimensions of the machine are as follows :—

Span	24.55 m.	Height overall	4.35 m.
Length overall	16.15 m.	Wing area	93.5 sq. m.

Weights and performances with various engines are stated to be as follows :—

	B.M.W 2×180 h.p.	Maybach 2×240 h.p.	Hispano 2×300 h.p.	Napier 2×450 h.p.
Weight empty	2,700 kg.	3,085 kg.	2,800 kg.	3,150 kg.
Weight loaded	3,950 kg	4,350 kg.	4,100 kg.	4,850 kg.
Max. speed	160 k.p h.	185 k.p.h.	180 k.p.h	200 k.p.h.
Ceiling	4,000 m.	4,500 m.	4,000 m.	5,500 m.



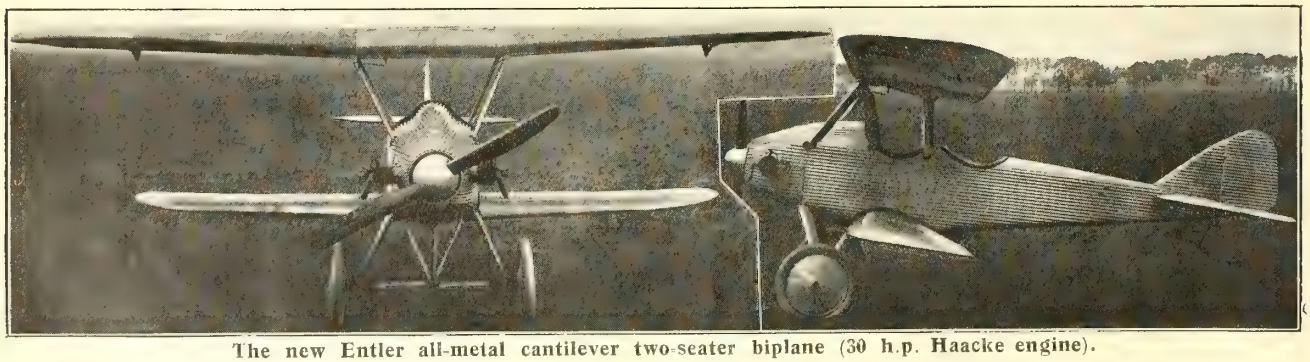
The Swiss-built Dornier nine-seater flying boat.

NEW GERMAN ENGINES.

Despite the restrictions on German aircraft engine manufacture, experimental work of all kinds seems to be proceeding with considerable vigour and several new and useful engines are even now ready for production.

Quite how and where the development of the new air-cooled Siemens Halske engines has been carried on is not known—possibly owing to the relatively low power of the engines so far made the work may have been permitted in Germany.

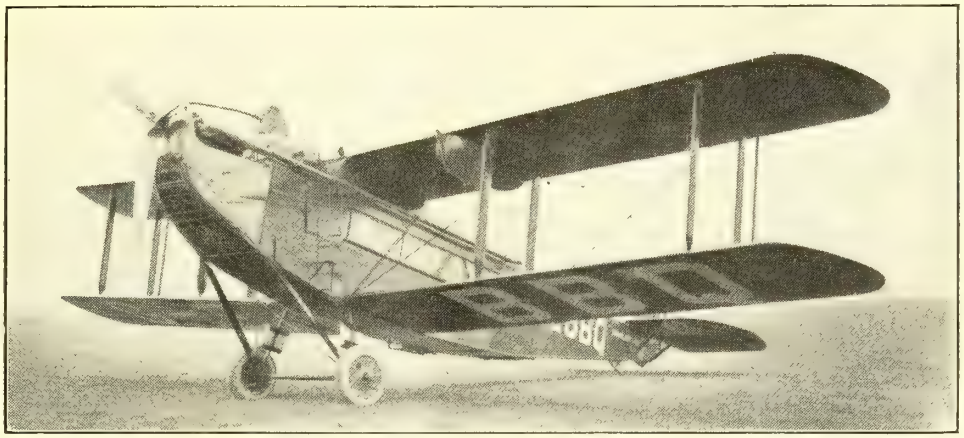
Information is just to hand that the Bayerische Motor Works have ready for production two new engines of the well-known B.M.W. type. Both of the six cylinder type, one is of 120 h.p. weighing only 1½ kg. per h.p., and the other is of 240 h.p. Both engines are marked by a very low fuel consumption; for the larger engine this is guaranteed at .195 grammes (0.43 lbs.) per h.p. hour. It will be possible to illustrate and describe these engines more fully in the near future.



The new Entler all-metal cantilever two-seater biplane (30 h.p. Haacke engine).

The D.H. Type 34

(11 Seater)



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WHO THOUGHT OF IT FIRST?—A reduced reproduction of the Bristol advertisement in "The Aeroplane" of January 31st, 1917.

HANDLEY PAGE LIMITED.

At the Annual General Meeting of Handley Page, Ltd., on Friday, June 23rd, Lt.-Col. J. Barrett-Lennard, C.B.E., the Chairman, gave a very complete—and in many ways a distinctly reassuring—exposition of the company's position. The salient features of this statement—considerably condensed—are here given :—

In 1914 Handley Page, Ltd., had a capital of £10,000. During the war it secured contracts for the manufacture of aeroplanes totalling many millions, and great profits resulted. In 1919 it offered for subscription at a premium £600,000 of debentures, those responsible evidently believing that the demand for civil aircraft would be on a scale commensurate with the war demand. That belief might yet be justified. It was not so now. Government contracts had been cancelled. This had laid idle a large factory (built during the war), but had little to do with the financial troubles.

The Company had engaged in the manufacture of motor cars and the consequent loss had been very large. They had also entered into a contract to build car bodies, but the other party to the contract had failed to fulfil it.

Great losses had also resulted from a large expenditure in an attempt to develop a market for aeroplanes in distant countries.

Handley Page, Ltd., had been appointed selling agents for the Aircraft Disposal Company, and had through their hands a sum of £400,000 the property of this company.

By or before March, 1921, great capital and current expenditure had absorbed the whole of the Company's cash, enormous liabilities had been incurred, judgment creditors were in possession of their properties, they were indebted to their bankers for £125,000, and they had expended the £400,000 belonging to the Aircraft Disposal Co. Handley Page, Ltd., had subscribed for over £500,000 preference shares in this latter company. They had paid £128,000, and owed £40,000 in respect of calls on these shares, apart from a liability of £336,000 for calls not yet made.

Owing to the retention of the £400,000 by Handley Page, Ltd., the Aircraft Disposal Co. had been unable to meet part of the obligations under its contract with the Government, and the cancellation of the contract appeared possible.

At this stage Col. Barrett-Lennard and the other new directors became interested in the management of Handley Page, Ltd. They were interested as representatives of the secured and unsecured creditors. When they came to examine the conditions they found them even worse than they had imagined. But they had decided that they might realise more for themselves, and even something for the shareholders, if they attempted to put the Company's affairs in order. This required much hard work, and the provision of even more money.

In order to keep the company in existence so that they might reduce its liabilities and ripen its assets they had to find nearly £50,000 per annum for interest on bank debt, rates, patent fees and administration. At the time they took over their estimate of assets and liabilities showed a deficit of £1,056,000; as a result of their policy they had reduced this liability by over £800,000 and he thought the shareholders might regard this as satisfactory.

Actually other results have been obtained. An agreement between the Aircraft Disposal Co., Mr. Handley Page and Handley Page Ltd., provided in consideration of the Aircraft Disposal Co. refraining from liquidating Handley Page, that the Aircraft Disposal Co. should nominate the management of Handley Page, Ltd. The amount due to the Disposal Company was to be settled by Mr. Henry Morgan.

The selling agency held by Handley Page was cancelled—but all commission earned to date was to be credited to Handley Page, Ltd. Further Mr. Handley Page personally abandoned to Handley Page, Ltd., the sum of £176,000 due to him and also pledged assets of great value to secure partially the payment of part of the debt owed to the Disposal Co.

The Company largely depended on Government orders and although the Government were not giving many orders at the moment, the directors believed that they were about to get a very useful contract. Their subsidiary, Handley Page Transport, carried a larger proportion of the traffic between London and Paris than any other company.

The directors had done more than they had hoped to be able to do, and he trusted that they would be able to continue the process.

The Chairman referred to a committee appointed at a meeting of large shareholders, which had reported that preference shareholders should be competently represented on the board and that Handley Page, Ltd., should be represented on the board of the Aircraft Disposal Co. He did not agree with all the committee's conclusions, but did not propose to adopt a controversial attitude. After discussion, the Rev. W. E. B. Barter was elected to fill the one vacancy on the board of directors as a representative of the preference shareholders.

A FRENCH REVIVAL.

Those who remember the good work done by the Aero Club du Centre before the War will be interested to know that the Club has recently been reconstituted, 120 active members, of whom 30 were pilots, attending the first meeting. The new President is Commandant Genain, who commanded the air force of a French Army during the War, and the Secretary is Monsieur Andre Melin, who has offices at 26 Notre-Dame de Recouvrance, Orleans. The Club has undertaken the charge of a training centre at Saran. Orleans, being practically the centre of France, is obviously the right place for such a club, and one hopes to record during the year considerable activities by its members.

A NEW COMPANY.

The Walmsley and Armstrong, Whitworth Deal.—Charles Walmsley and Co., Ltd., was registered on June 23rd by Roney and Co., Solicitors, 42, New Broad Street, E.C., with a nominal capital of £190,000 in £1 shares. The objects are : To adopt a certain agreement (the parties to which are not named, to acquire the property and undertake the obligations referred to therein and to carry on the business of manufacturers of paper-making machinery and appliances, engineers, ironmasters, iron bridge builders, colliery, quarry and mine owners, miners, smelters, founders, boiler makers, iron and steel converters, manufacturers of and dealers in engines, boilers, shafting, gearing, piping and machinery of all kinds, railway, tramway and road locomotives carriages, cars, omnibuses, trucks and vehicles, motors, motor sweeping, watering and sprinkling cars, airships, aeroplanes, ships, steamers and other craft, suppliers of electricity, steam, gas, cold and hot water and air in any state for lighting, heating, ventilating, working and driving, etc. The subscribers to the Memorandum of Association (each signing for 500 shares) are :—

G. H. West, 8, Great George Street, S.W.1. (Chairman, Sir W. G. Armstrong, Whitworth and Co., Ltd.).

H. Harrison, 8, Great George Street, S.W.1. (Financial Secretary, Sir W. G. Armstrong, Whitworth and Co., Ltd.).

The first directors (to number not less than three nor more than seven) are to be appointed by the subscribers to the Memorandum of Association. Qualification of directors : £500 shares or stock. Remuneration (except managing directors) £150 each per annum (chairman £250), free of income tax. The registered office is at Wood Street, Elton, Bury, Lancs.

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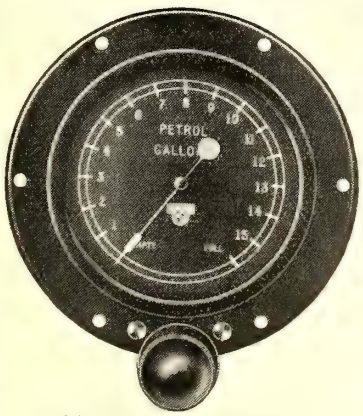
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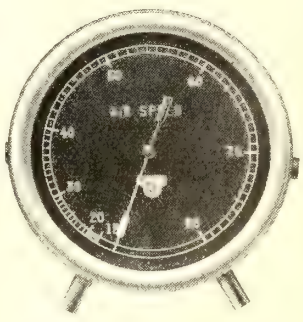
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The London Terminal Aerodrome.

CONTINENTAL ARRIVALS AND DEPARTURES.

ABBREVIATIONS :—A.D.—Aircraft Disposal Co. B.A. Berkshire Aviation Co. B.C.—Bristol Aeroplane Co. C.A.—Department of Civil Aviation. D.A.—Daimler Airway. D.H.—De Havilland Aircraft Co. G.E.—Compagnie des Grands Express Aeriens. H.P.—Handley Page Transport Ltd. I.L.—Instone Air Line. K.L.—Koninklijke Luchtvaart Maatschappij. L.A.—Leatherhead Aviation Services. M.A.—Messageries Aeriennes. M.W.—Marconi Wireless Telegraph Co. Ltd. P.O.—Privately owned. P.L.—Petters Ltd. S.F.—Surrey Flying Services.

ANALYSIS OF FIGURES.

Number of trips made during week.—I.L. 38, H.P. 11, D.A.18, M.A. 26, G.E. 10, K.L. 22, D H. 1.

Number of passengers carried.— I.L. 53, H.P. 91, D.A. 58, M.A. 23, G.E. 16, K.L. 22, D.H. 2

Total number of trips by British machines : 68 carrying 204 passengers.

Total number of trips by foreign machines : 58 carrying 56 passengers.

Trips per day.—Monday June 26th, 12; Tuesday 27th, 22; Wednesday 28th, 11; Thursday 29th, 24; Friday 30th, 25; Saturday July 1st, 25; Sunday 2nd, 7.

STATISTICS.

Machines, 126; Passengers, 260; Crews, 173; Total Personnel, 433

Corresponding week last year :—

Machines, 102; Passengers, 381; Crews, 123; Total Personnel, 504

Corresponding week, 1920 :—

Machines, 113; Passengers, 221; Crews, 134, Total Personnel, 355

NOTES OF THE WEEK.

On Wednesday Major Foot was testing a " Tinside " for the Aircraft Disposal Company, and on Thursday Capt. Stocken had the same machine out again and later on he was flying an Avro. He again tested the Avro on Friday and afterwards he took a Bristol Fighter for a test and then delivered it to Brussels.

On Saturday, about 14.00 hrs., two red S.E.5as appeared in the distance and began looping in unison as they came down. They were flown by Capt. Stocken and Mr. Hayns. The third S.E.5a from the Brussels meeting was landed, by Mr. Courtney, in a cornfield near Dover, whence Capt. Stocken is collecting it.

One or two machines have been floating round bearing the insignia of the Irish Free State. This consists of a target with an orange centre, a band of white and an outer band of emerald green. One machine was being flown by the Commander-in-Chief of the Free State Air Force, an amazingly juvenile ex-officer of the R.A.F.

Nothing very exciting has happened during the week on the air lines. Mr. Payne came down and flew the Lorraine-" Vimy " owned by Grands Express Aeriens, and Mr. Cockerell took it to Paris on Saturday with Mr. Oliver Vickers as passenger.

Handley Page Transport took delivery of the Napier-engined W8 G-EAPJ on Friday. Mr. Rogers brought her over from Cricklewood and flew her round about on one engine with the greatest of ease.

The " Vulcan," on which Mr. Keys perched among a tree near Tonbridge last week, is very little damaged and is now back at Weybridge. Mr. Cockerell says she will be out again this week together with another " Vulcan."

The Daimler Airway are still running with the greatest regularity on G-EBBS. Although it is about the newest machine on the aerodrome, it has already put in nearly as much flying time as the oldest inhabitant, which is probably the D.H.18 G-EARO, which has done nearly 800 hours. Perhaps the " Vimy " has equalled this, but one doubts it as she has been out of commission now and then for longish periods.

On Saturday a machine left Croydon with eight paying passengers. This phenomenon was thought by some to be due to another financial failure in the City which had necessitated the Board of Directors' leaving in a hurry.

Mr. Shaw has been out during the week on the Wireless-Renault-Avro and Mr. Hubert Broad came over from Stag Lane on a D.H.9

Mr. Muir returned from Leighton Buzzard early in the week on his Avro, where he had been giving exhibition flights. He tells one that the whole show was marred by dud weather.

It should be noted that all the early morning machines carry a very heavy and profitable load of newspapers which is always equivalent in weight and value to at least half a dozen passengers.

On Saturday morning when Mr. George Powell was going across early he said it was about the clearest day he had ever known. He could see the roofs of the houses in Calais from over Dungeness.

One gathers that it has now been definitely decided that the Aerial Derby shall take place at Croydon on Monday, August 7th.—G. P.

Stag Lane.

To those who are apt to think that aviation is fast following the Dodo to extinction it would be well for them to visit Stag Lane, the aerodrome of the De Havilland Aircraft Co., Ltd., on any day of the week and at almost any hour of the clock. By doing so they would not see an aerial pageant on a small scale, in fact they might see no flying at all, but by tender enquiry of anyone in authority it might be learnt that the whole of their stud of eight or ten machines are " reeling off the knots " miles away from home and really demonstrating that civil aviation is a thing in being.

During June, something like 200 hours' flying was done by the De Havilland Hire Service and there is every indication that this will be eclipsed this month.

In the shops there are 1 D.H.34 awaiting delivery to Martlesham Heath, 2 Daimler Hire D.H. 34s under repair after their *contretemps* on Croydon aerodrome, 3 D.H.34s building to the order of the Air Ministry and 2 further 34 fuselages ready for assembly. In addition 1 D.H.18, G-EAWW, is being reconditioned for the Instone Air Line.

There is also the D.H.27 " bomber," the D.H.37 building to the order of Mr. Alan Butler, and a batch of D.H.16s acquired from the late lamented A.T. and T., which are being rebuilt. One is quite ready for test, and judging from the lettering on the fuselage it will eventually become a member of the fleet of the De Havilland Taxi Service.

On the occasion of the arrival of H.R.H. the Prince of Wales at Plymouth on June 20th 4 D.H.9s of the Hire Service were employed by the various daily news-sheets to fetch photographs. Messrs. Cobham, Barnard, Broad and Wilson left Stag Lane in the dark that morning. In all, they spent 30 hrs. 10 mins. oscillating between London and Plymouth to the entire satisfaction of everyone concerned. In one case photographs were taken on *Renown* in Plymouth Sound, rushed to London, developed, printed in the papers, and a batch of them were delivered, also by air, on board the *Renown* by 06.00 hours the following morning.

During the Aerial Pageant two D.H.9s, flown by Messrs. Cobham and Barnard, carried over 20 passengers in spite of the weather. Mr. Broad brought up three passengers from Walmer to see the Pageant and flew them back the same evening.

On June 25th Mr. Cobham flew Gen. Brancker to Brussels to attend the Brussels Meeting. On the 27th Mr. Barnard flew over Wimbledon with a Pathé kinematographer to get pictures of the opening of the International Tennis Tournament.

On the 28th four D.H.9s were booked up by the various London newspapers to get photographs of the Irish war, and Messrs. Cobham and Broad flew to Dublin and back to Shotwick while Messrs. Barnard and Wilson flew to Dublin and returned to Shotwick the next day. On the following day Mr. Wilson returned to Dublin, where he still remains, whilst the other three returned to Stag Lane. In all a total of 23 hrs. 20 mins. flying.

In the meantime a considerable amount of photography work has been carried out and Mr. Ralph Keys was loaned by the Instone Air Line to go to Cambridge in the absence of the four regular pilots in Dublin.

Two pupils are being instructed on two D H.6s, and numerous tests have been made with D.H.34s.

D.H 9, G-EAAC, the veteran of civil aviation, has been fitted with a set of high lift wings. An extraordinary improvement in performance has been obtained, but figures have not yet been released.

The above is a very bare resumé of what the de Havilland Co. have accomplished during the last fortnight. The excellence of their performances, every one of which has been carried out without failure (and without subsidy, it might be mentioned), redounds to the credit of all concerned.

THE BRUSSELS MEETING.

On June 23rd, 24th, 25th an International Air Meeting was held at Brussels (Evère) under the auspices of the Belgian Aero Club. Friday, June 23rd, was devoted to military competitions and the results were as follows :—

Reconnaissance Competition : 1st, Serjt. Hanson (pilot) Lieut. Fabry (observer). It is interesting to note that this contest attracted 37 entrants.

Formation Flying Competition (two-seaters) : 1st, Commandant Crombez, Lieut. Stampe, and Lieut. Kervyn de Lettenhove; (single-seaters) : 1st, Lieut. Hage, Lieut. Benoidt and Lieut. Jamar.

Regularity and Landing Competition, 1st category : Capt. Lambert. 2nd category : Adjt. Herzenburg.

M. Fronval on his Morane Saulnier monoplane gave a demonstration of acrobatics that enthused the crowd.

On Saturday M. Fronval opened the proceedings with some *virtuosité*. Mlle. Le Roux and M. Blanquier gave parachute descents, so that the local crowd were well tuned up for subsequent events.

An aerial fighting competition was won by Lieuts. Hage and Kervyn de Lettenhove

At the end of the day Lieut. Bonneton, commanding the French escadrille from Thionville, was fatally injured through spinning into the ground while chasing balloons.

On Sunday, in unfavourable weather, a huge crowd arrived at Evère. M. Poirée on a Caudron "Sport," Douchy on a Potez "Sport" and Lieut. Rabatel on a Gourdou-Lesseure monoplane gave exhibitions of stunting. Poirée won the Concours de Tourisme and M. Paulhan on a Farman "Sport" was second.

In the Commercial Aeroplane Competition Major Foot and Mr. MacIntosh on the Handley Page W.8.b. scored a run-away win, with M. Sadi-Lecointe on a Nieuport-Delage second.

The Balloon-strafing Competition was won by Lieut. Kervyn.

The Meeting was honoured by the presence of H.M. King Albert and Princes Leopold and Charles.

In spite of the presence of a French squadron it appears that Belgian military aviators won all the military events. It is interesting to note that small as the Belgian Flying Corps may be it is equipped with the 300 h.p. Hispano-Suiza Nieuport-Delage single-seaters, a machine that could make rings round our "Snipes."

It was intended that a flight of Bristol Fighters from 24 Squadron, Kenley, should have gone to Brussels after the Aerial Pageant, in order to uphold the prestige of the R.A.F. After the battering they received from rain and wind in the various events on the 24th at Hendon, the Higher Authorities decided that it would be inhumane to ask them to fly straight off in low clouds and rain across the Channel into probably worse weather in Flanders. The pilots were keen to go, but they were stopped by the orders of senior officers.

The S.E.5as sent over by the Aircraft Disposal Company had rather bad luck. There was a certain amount of sand in the water supplied to the radiators and this apparently did not help much. Mr. Hayns made the fastest time of the three in the preliminary heat and was well on his way in the actual race to winning, when his engine cut out on one block of cylinders and he was compelled to land in the aerodrome.

In the commercial competition, the pilots of the W.8 had to make two circuits each of 35 km. and had to estimate their time for the performance. They were exactly right in the first circuit and 12 1-5 secs. too early in the second. The machine attained 100 per cent. marks for climb, take off and load carried.

The King and Princes of the Belgians afterwards inspected the machine, which was G-EBBI with Rolls-Royce engines.

Mr. Handley Page and Mr. Cogni travelled from Croydon in the machine. Mr. Cogni tells one that there was an enormous number of machines at the aerodrome.

AIRCRAFT IN PARLIAMENT

On June 29th, in reply to a question by MR. A. T. DAVIES, THE SECRETARY OF STATE FOR AIR said that it is quite true that the aeroplanes used at the recent R.A.F. display at Hendon, with the exception of the experimental machines were not less than four years old but they were all thoroughly sound and serviceable, many of them recently re-conditioned, and all capable of satisfactory performance. With regard to Iraq, Somaliland and India the same general remark applies but some of the Squadrons abroad have been partly rearmed with new aeroplanes and the four Squadrons working with the Navy are being completely rearmed. CAPTAIN GUEST also said that ten aeroplanes of new type have been issued to Squadrons since April 1st, 1922, and that the approximate cost was £106,000.

Replying to REAR ADMIRAL SUETER who seemed anxious about the Desert Route, CAPTAIN GUEST said that with the exception of the Vickers type, all the aeroplanes used on the cross-desert route are either of 1918 or 1919 build. They are all quite serviceable and it would be expensive and unnecessary to replace them at present. He said that these machines were not built for the cross-desert route but that it was not considered necessary or practicable to build a new type of aeroplane for every kind of work that the Air Force had to do. The civil aeroplanes used on the London-Paris route are of a variety of types and would not be suitable for Royal Air Force work without extensive modifications. CAPTAIN GUEST assured the Hon. and gallant Admiral that the question of the re-equipment of the R.A.F. with new types of aeroplanes is fully recognised as one of the greatest importance and is being given constant careful consideration by expert advisers.

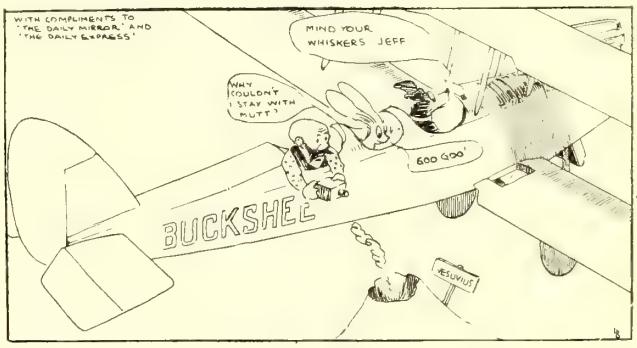
CAPTAIN GUEST regretted that there was a good deal of truth in Captain Viscount Curzon's supplementary question which suggested that many firms engaged in the manufacture of aircraft and aircraft engines are being compelled to go out of business through lack of orders.

MR. L'ESTRANGE MALONE asked the Secretary of State for Air if his Department has approved the Burney airship scheme and was told that the scheme had been transferred to the Committee of Imperial Defence. MR. MALONE turned his attention to THE PRIME MINISTER who said that the scheme was under consideration and it was hoped that the Committee would come to an early decision.

REAR ADMIRAL SUETER, CAPTAIN WEDGWOOD BENN and LT.-COL. SIR F. HALL were all anxious to hear about Civil Aviation but CAPTAIN GUEST pointed out that there would be an opportunity to discuss the question on the Civil Aviation Vote which is still on the Paper.

On June 29th, LIEUT.-COMMANDER KENWORTHY asked the Prime Minister for the names of the persons forming the Committee to consider the problem of aerial defence. MR. LLOYD GEORGE did not consider it desirable to give him the information but that the War Office, Admiralty and Air Ministry were represented on the Committee and that its conclusions will be communicated to the Departments concerned in due course. LIEUT.-COMMANDER KENWORTHY said that the public were filled with anxiety that money was being wasted on obsolete weapons of war and not on the Air Service. THE PRIME MINISTER thought that the public anxiety was quite reasonable. He added that the matter is being pressed forward by the various Departments.

MAC, BROOME AND WILFRED
(to say nothing of Jeff).—VII.



MY DEAR PILOTS AND GROUND WALLAHS,—

The Pets are moving steadily on their way and have now reached Athens. Of course they have not yet caught up Jerry's friend who is walking round the world dumping their spares for them, but then of course they don't expect to.

It was a long time before they got away from Brindisi as something went wrong in their petrol pipe system. At first Mac and Jeff thought that Wilfred, who had been seen playing round the machine, had crept in and died. But as he was still seen playing round afterwards, they knew it could not be that. They thought of fitting macaroni piping, but ultimately decided it was better to keep the old copper pipe and clean it. And so they at last got away to Greece.

Jeff is doing splendidly and thinks he is taking much better photographs than did Broome. Anyway after six whole weeks they have reached Athens. You all know that delightful little poem by a chap called Byron about the king who

"counted them at break of day
But when the sun set where were they."

Well, I should think they will probably still be at Athens next week, where at any rate we will count them until next week.

Your affectionate Uncle—G D

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THE BUYERS' GUIDE WEEK BY WEEK.

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AEROPLANE MANUFACTURERS.

Bristol Aeroplane Co., Ltd., The, Filton House, Bristol "Aviation," Filton. Bristol 3906 *Back Cover*

De Havilland Aircraft Co., Ltd., The, Stag Lane Aerodrome, Edgware. "Havilland," Edgware. Kingsbury 160-1 (2 lines) 11

Roe, A. V., & Co., Ltd., Newton Heath, Manchester. "Triplane," Manchester City 8530-1, Manchester *Inside Front Cover*

Vickers, Ltd., Vickers House, Broadway, London, S.W.1. "Vickers," Vic, London. Victoria 6900 5

AIRCRAFT DISPOSAL.

Aircraft Disposal Co., Ltd., The, Regent House, Kingsway, London, W.C.2. "Airdisco," Phone, London. Regent 6240 (5 lines) *Inside Back Cover*

AIRSCREWS.

Falcon Airscrew Co., The, 113, Cottenham Road, Holloway, N. 19. "Charcoal," Uphol, London. Hornsey 1580 (2 lines) *Front Cover*

AIR LINES.

Daimler Airway, Ltd., 243, Knightsbridge, S.W.7. Kensington 7040 13

Instone, S., & Co., Ltd., 51, Leadenhall Street, London, E.C. Avenue 3616-7-8 15

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MacLennan, John, & Co., 115, Newgate Street, London, E.C.1. "Vanduara," Cent, London. City 3115

DOPES.

Titanine, Ltd., Empire House, 175, Piccadilly, London, W.1. "Tetrafree," Piccy, London. Gerrard 2312, Regent 4728 *Front Cover &*

ENGINES. — *See Advert. Page*

Bristol Aeroplane Co., Ltd., The, Filton House, Bristol. "Aviation," Filton. Bristol 3906 *Back Cover*

Green Engine Co., Ltd., The, 166, Piccadilly, London, W.1. "Airengine," London. Gerrard 8165 *Back Cover*

Rolls-Royce, Ltd., 15, Conduit Street, London, W.1. "Rolhead," Piccy, London. Mayfair 6040 (4 lines) 6

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R.F.D. Company, 21, Queen's Road, Hersham, Surrey. Esher 365. 16

INSTRUMENTS (Speed Indicators, etc.).

Smith, S., & Sons, Ltd., 179-185, Great Portland Street, London, W.1. Mayfair 6350 (6 lines) 13

METAL PARTS AND FITTINGS.

Brown Bros., Ltd., Great Eastern Street, London, E.C.2. "Imbrowned," Bethroad, London. Bishopsgate 2100 *Inside Back Cover*

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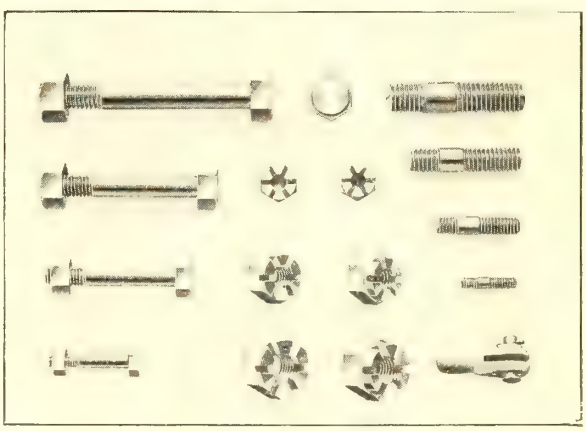
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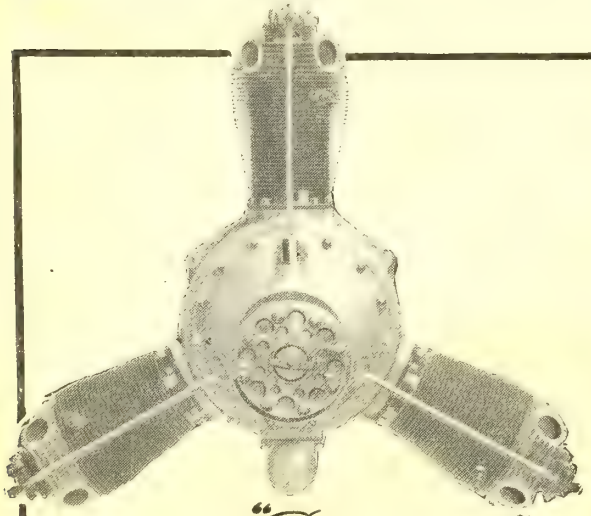
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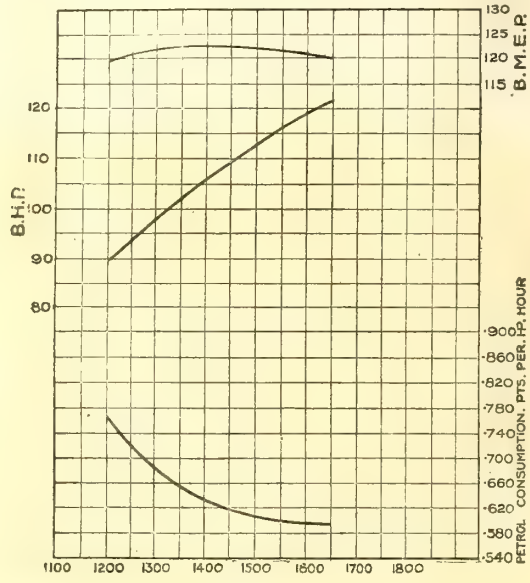


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ON THE RE-EQUIPMENT OF THE R.A.F.—II.

Last week one ventured to indicate that although it is absolutely necessary to re-equip the R.A.F. throughout with new machines in the course of the next twelve months or so, it will be quite impossible for some years to come to standardise any type of machine for R.A.F. use. That is to say, we cannot this year say that such-and-such machine shall be the standard single-seater fighter and that such-and-such shall be the standard two-seater fighter and such-and-such shall be the single-engined bomber and that such-and-such shall be the twin-engined bomber and so forth. The reason is that practically every machine actually in use in its experimental stage at present is already out of date in the light of our knowledge to-day.

If we standardise any of the existing experimental types, even supposing orders were placed to-day and were distributed among a number of firms, the first standardised machines would not begin coming through the factories till February or March of next year (allowing ordinary delays for the production of tools, jigs and so forth), and the R.A.F. would not be actually re-equipped with these standardised machines until the middle of 1924. By that time every machine would be just as out of date as are the machines which are in use to-day, and very few of them would have a much better performance than those of to-day.

The obvious inference is that before we can think of standardising one particular type for one particular purpose throughout the R.A.F. we must go through a prolonged period of development. This period of development, which may very well occupy ten or twenty years, must be accompanied by assiduous research and experimentation. Not until we have come within sight of the end of our research can we dare to standardise types throughout the R.A.F. But meantime, within the next twelve months, the R.A.F. has to be re-mounted on reliable machines capable of modern performance, and the problem is what is the right way to do it.

One believes that the proper course to follow is to turn all the squadrons of the R.A.F. into what are to-day known in the Air Ministry as "development squadrons," that is to say, squadrons which are equipped with new types of machines which have just passed the experimental establishments and have done their type tests but have not been flown consistently to find out all their minor troubles. Thus it would be possible to make far more rapid progress towards producing practical flying machines than could possibly be made by carrying on with obsolete machines in the R.A.F. and spending vast sums on research as is advocated by some people.

Research Fallacies.

The idea of having a research expert on the Air Council, as has also been advocated, is too terrible to be endured. Those who have been to Air Conferences and Royal Aeronautical Society meetings and so forth know what kind of man is the research expert. Generally he is a long-winded, prosy old fellow who argues for hours about details to ten places of decimals and goes entirely wrong over basic facts which he cannot see staring him in the face. The keen, worldly, far-sighted Service people who constitute the Air Council would arise and slay him, metaphorically, in their first meeting. What the Air Council wants is a telescope, not a microscope.

One may grant at once that basic research and *ad hoc* research are both necessities, but there is far too much fuss being made about research at the moment and not enough about plain common experimentation, which is after all a very diluted form of research. Straight experiments with high-lift, slotted and variable cambered wings on machines of known performance are much more important than wind-tunnel experiments on fuselages and component parts of aeroplanes by people who do not know enough to recognise that the air flow in a tunnel is vitally affected by the measuring gadgets themselves and that the head-resistances of the parts of an aeroplane added together bear no relation to the total head resistance.

There is no ignorance so dense as the ignorance of the self-taught and self-appointed scientist, and what the R.A.F. wants to-day is not the incomprehensible figures of the so-called research people but the actual test figures of aeroplanes which fly. Service aviation can no more carry the cost of basic research as well as that of the absolutely necessary R.A.F. experimental establishments than a so-called commercial aeroplane can carry the cost of a spare pilot sitting alongside the actual pilot and drawing his money for doing nothing.

Technical Ignorance.

As to scientific ignorance, it seems well here to refer to the fact that the re-organisation of the Technical Departments at the Air Ministry under the Geddes Axe has not been by any means successful. Some of the very best and most useful men have been dismissed or have had their pay cut down, leaving them in a discontented and unhappy frame of mind, while many other people who might have left the Air Ministry for the Air Ministry's good still remain there. Departments which were doing extraordinarily good work have been disorganised and demoralised, while other departments which have definitely done harm to the progress of aviation have been left untouched.

For example, one may mention one particular department which has probably done more harm in proportion to its size than any Government department on record. That is the one concerned with aero-engine radiators. So far as one can discover that department's only remedy for over-heated engines is to cram on more radiator surface quite irrespective of whether the radiators fitted are efficient or inefficient. Only recently one of the big flying boats previously fitted with two engines of 365 h.p. was fitted experimentally with two engines of 450 h.p. By order of this department these engines were fitted with radiators which presented so much area that the boat was actually slower with 900 horse power than it had been with 730 horse power. Yet those same engines could have been kept perfectly cool with properly designed radiators presenting much less area than those normally used for the smaller engines. It can be demonstrated quite easily that every radiator used in the R.A.F. to-day which has been produced to the specifications issued by this department sets up far more head resistance and weighs very much more than is necessary.

In much the same way, the department responsible for electrical fittings merely hampers progress instead of helping it. As a case in point, there is a certain machine which has electric cables fitted inside the wings. It was found that owing to vibration the insulation of the cables chafed away where they passed through the wing-ribs. Instead of fitting proper thimbles to protect the cable or even using metal-braided cable, the geniuses of this department insisted on fitting special cable made with enormously thick insulation, which multiplied the weight of the original cables about four or five times and instead of actually protecting the cable against chafing merely prolonged the period which it would take to chafe through it.

Another department which has been a source of continual annoyance and incidentally derision among aircraft designers and constructors is that concerned with petrol systems. This department has produced most amazing gadgets in the way of pumps and valves and taps and so forth, all of which have merely added to the weight of the machines and have introduced more and more possibilities for air-locks and stoppages. When left to themselves the aircraft designers could have produced perfectly simple petrol systems which would have weighed less and cost less and have been reasonably reliable.

Be it understood that one has no personal knowledge whatever of the composition of these departments and one judges them entirely by their works. Those works are distinctly sufficient to show that the Geddes Axe has fallen in the wrong place.

Obviously, if the R.A.F. is to be re-equipped as it should be, such departments as these ought to be abolished altogether, for they are neither research, experimental, nor pro-

duction departments, they are merely a hindrance to progress. What the Air Ministry wants is practical people who will see to it that the R.A.F. has the best material available and that the productive ingenuity of the Aircraft Industry is used in the best possible way.

The Prime Necessities.

The two prime necessities are (*a*) to remount the flying personnel of the R.A.F. on modern machines built of modern material so that all the dangerous old fire-wood contraptions built of kiln-cured Oregon pine and cedar and poplar and so forth can be scrapped, and (*b*) to keep our aircraft factories and design staffs just so busy on new types that the pick of the personnel can be kept going at reasonable wages on work of a nature which will stir their enthusiasm and rouse that spirit of competition against other firms which alone can spur people to progress.

To achieve these ends the whole policy of the Air Ministry will have to be changed. The established Service hankering after standardisation must be overcome. Granted that standardisation of equipment in a big war is necessary, this is not the time for it. Standardisation is the enemy of progress. And progress is what we need.

Let us standardise accessories and fittings and material as much as possible. Let us insist on limiting the number of sizes in nuts and bolts, pins, screws and so forth, such as used to be and still are known as A.G.S. parts. Let us keep down the number of different tyres and wheels and sizes of steel tubes and types of instruments. Let us standardise levers for spark and throttle and shutter and bomb and other controls. But let us have as many different types of aeroplanes and engines as possible.

Instead of trying to standardise one design of bomber for all bombing squadrons let each bombing squadron be equipped with a different design of machine—one design to each squadron—and then let us see which squadron does the best work. Similarly let us equip one fighting squadron with monoplanes and another with cantilever biplanes and another with braced biplanes, and others again with similar machines but different engines. And so on all along the line.

And after one squadron has had one type for a certain period let it change machines with another squadron of the same category, so that it may be proved whether the superiority of one squadron over another was due to its personnel or its matériel.

A Matter of Personnel.

Parenthetically one would like to suggest that to make such a system an absolute success the personnel of the squadrons would have to be firmly established. The squadron would have to become the home of officers and men, as the Chief of the Air Staff suggested it ought to be a year or more ago. And the Personnel Department would have to cease playing Badminton with people whose one desire in life is to settle down and devote their energies to making their own particular unit the finest of its kind.

The trouble hitherto has been that not only does the Personnel Department never give officers and men an opportunity of settling down and becoming sentimentally attached to their own squadrons, but it has never made the most remote attempt to appoint people to the jobs for which they are best fitted. Here the new Director of Personnel has a magnificent opportunity. It ought to be perfectly easy with the help of the R.A.F. Medical Service to pick out pilots who are temperamentally suited to be scout pilots or long range bomber pilots or big machine pilots. One would guarantee to be right in anyhow eight cases out of ten in choosing pilots and using no more elaborate apparatus than a box of dominoes and a stop watch.

Also, of course, the natural inclination of the pilots themselves should be considered. If a man likes flying single-seaters it is obviously absurd to appoint him to a squadron of heavy bombers or troop carriers, and likewise if a man's natural inclination is towards flying big heavy machines it is equally absurd to appoint him to a scout squadron where he will only get a bad name as a ham-handed pilot, and probably spoil his chance of promotion.

Similarly, hardly any attempt has been made to use special experience to the best advantage. Probably the best possible example of wasting valuable experience was the case of an officer who had for several years specialised on the construction and experimentation of seaplane floats and flying boat hulls. At considerable expense to the nation he had acquired a highly valuable store of knowledge which might have been most usefully employed after his period of staff work had expired by appointing him to a seaplane development squadron or to fleet co-operation work. Instead of using his knowledge in this way he was appointed to handle armoured cars in Iraq, a job which essentially requires experience of personnel and not technical knowledge.

The Technical List.

This subject naturally brings up the vexed question of whether the R.A.F. ought to have a list of purely technical officers distinct from the executive list, much as the Navy has a list of engineers who hardly ever use their authority as executive officers. Speaking at the Independent Force Dinner, the Chief of the Air Staff said that it would be a retrograde step if they were to break up the Service into small parts consisting of different types of experts, and he added that everyone must know about flying and some would specialise in certain branches so as to be more useful when their flying days were over.

There is certainly a great deal to be said for the argument that to be a trained engineer a man must be caught young and taught engineering to the exclusion of everything else. The Navy tried the experiment of training all naval officers at Osborne up to a certain point and then letting them specialise, but they found even before the War that the youngsters at Osborne were unwilling to specialise on engineering because of necessity the executive ranks were always regarded as socially superior to the corresponding ranks of engineer officers. Consequently the Navy had to go back to the old scheme of training engineer officers at Keyham as engineers and nothing else.

Nature's Selection.

Now obviously certain men are cut out for certain trades, and a man who is so constituted by nature that he will make a first-class technician very seldom has any executive ability, whereas the born leader of men equally seldom has any technical ability, at any rate of the more scientific kind. In the latest of his many delightful books Maurice Baring, describing his life at Eton, recalls the fact that it was the mathematical masters who were most unmercifully ragged by the boys. One's own recollections agree precisely with those of the one and only Maurice. The classical masters at the particular school on which one was inflicted could always preserve order and were always liked and respected by the boys. The scientists could never handle a class and were always unmercifully ragged. It is not without reason that the Classics are known alternatively as "The Humanities."

It seems fair to assume, therefore, that the man who would make the best squadron leader or wing commander or air vice-marshal would probably be an extremely bad technical officer, and that the officer whose chief joy in life consisted in spending his time on experimental work or in his squadron workshops would be a very bad commanding officer. Of course, there are exceptions in both directions, but in laying down the organisation for a huge affair like the Royal Air Force one has to legislate for the rule and not for the exception. The Chief of the Air Staff was obviously right, as he invariably is, when he said that he believed that while every officer should be a technical expert, an engine man, a photographer, a wireless man, a bombing man or torpedo man he must also at some time in his career have been a good pilot if he were going to use this great and scientific service to the best advantage.

The Point at Issue.

Any difference of opinion there may be between the Chief of the Air Staff and those who are advocating the formation of a special technical list seems to be rather a matter of degree than of kind. It would be a hideous mistake to bring into the Service a new class of engineer officers who are not and never have been and never will be flying men. The issue, therefore, seems to be rather the particular point in an officer's career at which he should begin to specialise.

We already see the evil of bringing in "Accounts and Stores" officers who have never flown. Some of them have given grounds for the bitter jest that the accounts officer is either just out of gaol or just going in.

Both Short Service and Permanent Commission officers have the opportunity of taking various special courses such as wireless, administration, engineering, Army co-operation and so forth, which each can select according to what he believes his own abilities to be. But a man of 23 or 24 years of age who has merely a taste for mechanical things and possibly some little facility in mathematics can never compete as a trained engineer with a man who has started to learn engineering anything between three and six years earlier. It seems worth while for the authorities to consider whether specialising ought not to begin at an earlier age when the would-be officer is still a cadet at Cranwell. The actual flying training and administrative training of the officers might well be the same for all, but a boy who showed natural mathematical or scientific ability would probably do better if that side of his education were specially developed at Cranwell.

Certainly there need not be a special list of engineer officers in the Air Force, but there might very well be some indication in the Air Force List of the subjects in which officers do specialise. The old Air Force List indicated by the letters "A" or "S" against the pilot's name whether he was an aeroplane pilot or a seaplane pilot, and if he were both they marked him "A & S." Also they had similar indications as to whether he was an administrative officer

or one or two other things. The Army List indicates whether an officer holds certain qualifications such as "*P.S.C.*," indicating that he has passed the Staff College, and suggesting that he is gifted with exceptional administrative and organising ability. The Navy List shows lieutenants "E" for engineer lieutenants, "T" for torpedo work, and so forth.

One suggests, therefore, that officers who specialise on certain work such as engineering, photography, wireless, bombing, torpedoes and so forth should have their speciality indicated against their names in the List. This might make it easier for the Personnel Department in future to avoid appointing a higher scientist to command, say, a packing depot or to avoid appointing a born administrative officer to pure research work.

In some such way as this every officer of the R.A.F. can be put into his own proper compartment where his natural ability can be used to the greatest advantage, but meantime the Air Ministry and the Government still have to decide how the R.A.F. is to be re-equipped. It cannot be so re-equipped unless the technical people at the Air Ministry know their jobs and unless the Aircraft Industry is used to the best advantage.

The Quandary of the Trade.

To-day the Aircraft Industry does not know where it is. There are few orders going about for experimental machines and engines. But there are no production orders. We hear of Rolls-Royce shutting down their aero-engine section. The Bristol people have arranged for the "Jupiter" and "Lucifer" to be made in France and cannot compete in foreign markets because they have no work on home orders to bring their overhead charges within reasonable limits or even to maintain their staff of skilled workmen. And all the rest of the Trade are relying on salvation by faith rather than on salvation by works.

Experimental Errors.

Even when orders for experimental machines are executed there is an appalling waste of time before machines are put through type-tests and before figures are available about their performance. As soon as a machine is completed it is rushed away to an R.A.F. experimental establishment and there it lies for months without anything being done with it. The maker and designer are not allowed to test it fully themselves so as to get their own figures or make alterations before delivery. And after delivery they are not allowed to stand by and check performances or suggest alterations.

In other cases, as with the Handley Page torpedo machine, instead of ordering a machine for a given purpose and requiring a given performance and leaving it at that, every little crank in every little sub-department at the Air Ministry is allowed to have a finger in the pie and to insist on his own pet gadgets being fitted, with the result that the machine is cluttered up with a whole lot of lumber most of which is removed and left lying about the sheds as soon as it gets to an actual flying station.

The said H.P. was nicknamed the "Heinz biplane" because of its "57 varieties" of levers, when in fact the real object in ordering it was to test the Handley Page slotted wing. In the event it seemed that this object was the least important of all.

An Easy Solution.

To sum up, the R.A.F. must have new machines and the Aircraft Industry must have orders. The one is dependent on the other. The two ends can be achieved quite easily and at quite moderate cost if the Air Staff will forget the prejudices of the Senior Services in favour of standardisation and will adopt a new policy which is as mobile and adaptable as is the R.A.F. itself. The fixed positions of the little strong-points in the Technical Department at the Air Ministry must be broken up. The various Experimental Establishments must be hustled out of their attitude of professorial contemplation.

While retaining the fixed principles of military organisation and scientific investigation, just as the R.A.F. Staff College must retain the fixed principles of war according to Clausewitz and Hamley, the people who are responsible for Supply, Research and Equipment must move with the times and adapt their ideas to new circumstances just as the R.A.F. adapts itself to the new circumstances of air war.

Right Men in Right Places.

Happily the new Director-General of Supply, Research and Equipment, Sir Geoffrey Salmond, is a man with vast and varied experience of air warfare in France and in the Middle East. He knows what the R.A.F. wants and he will certainly do his best to see that they get it. His duties will necessarily bring him closely in contact with the Trade. Already he has won the highest appreciation of those members of the Trade who have had dealings with him by his evident appreciation of the difficult circumstances under which they have to work. Sir Geoffrey's knowledge of the R.A.F. coupled with his understanding of the Trade cannot fail to help enormously the co-operation of Service and Trade interests.

Moreover, there is the all-important point that the Chief of the Air Staff, who knows vastly more about the technical side of aviation than our technical people think he does, has said that he likes the criticisms recently made against the small size of the R.A.F., and he has said that every pilot in the R.A.F. wants new machines. He is a man who has the habit of getting what he wants. Therefore it is to be assumed that we shall have our bigger and better equipped R.A.F. It is only a question of when? Personally one believes that the new developments will begin to take effect this year. At any rate one hopes so for the sake of both the R.A.F. and the Trade.—C. G. G.

INTERNATIONAL AIR NAVIGATION.

The International Commission for Air Navigation held its first meeting in Paris on July 11th. This meeting has been convened by the French Government in accordance with the terms of the International Convention for the Regulation of Aerial Navigation, which came into force on July 11th.

Fourteen States ratified the Convention on June 1st, these being: Belgium; Bolivia; British Empire, including Canada, Australia, New Zealand, South Africa and India; France, Greece; Japan; Portugal; Serb-Croate-Slovene State; and Siam, while the following States, which were not signatories to it originally, have adhered: Persia; Peru; Liberia; and Nicaragua.

The Rt. Hon. the Lord Gorell, C.B.E., M.C., Under-Secretary of State for Air, attended the first meeting as the British representative and acted also as the representative of India, and the Dominions, with the possible exception of Canada, who has not yet notified her representative. He was accompanied by Major-General Sir W. Sefton Brancker, K.C.B., A.F.C., Director of Civil Aviation, Colonel L. F. Blandy, D.S.O., Controller of Communications, and other officials of the Air Ministry.

Sir W. Sefton Brancker will, after the first meeting, be the permanent representative of Great Britain, and also for the present of the Dominions, with the possible exception mentioned above.

THE BURNEY AIRSHIP SCHEME.

The Air Ministry announces:—

The statement which has appeared in the Press to the effect that the Admiralty and Air Ministry are in disagreement as to the Burney Airship Scheme is wholly incorrect. The Air Ministry has expressed itself favourably to the technical aspects of the scheme, subject to certain reservations, and the Admiralty have stated the great interest which they take in the development of airships which would be available for use in naval operations. So far from conflicting, the view of both Departments is that the preservation of airships would be of considerable value to both of them for aerial and naval purposes. But the main problem arises in connection with the cost of retaining and developing airships which, even under the Burney scheme, involves a very large expenditure of public money, and this problem is one which can only be decided by the Government as a whole.

THE MOSCOW-BERLIN NON-STOP FLIGHT

The Department of Overseas Trade quotes the following from the *Berlinger Tageblatt*:—

"A Fokker aeroplane belonging to the Deutsch-Russischen Luftverkehrgesellschaft, flown by the German pilot Stollbrock, landed at 9.25 p.m. last night (21st June) in Berlin-Staaken. Passengers were the Russian representative Krestinski with his attendants. The aeroplane left Moscow early yesterday morning and flew without landing to Staaken. This feat constitutes a flight record. The air-line amounts to 1,800 kilometres. The route, flown in unfavourable weather, was via Königsberg, avoiding the 'Polish Corridor,' to Berlin-Staaken."

THE DEMISE OF S.N.E.T.A.

On June 1st the Société Nationale pour l'Etude des Transports Aeriens (S.N.E.T.A.) closed down, and from its ashes have arisen the Société Anonyme Belge de Constructions Aeronautiques (S.A.B.C.A.) and the Société Anonyme Belge d'Exploitation de la Navigation Aerienne (S.A.B.E.N.A.). These two concerns are the outcome of the work done by the parent firm, which was formed in 1919 to study the possibilities of aerial transport (hence its name) which it did theoretically in 1919 and practically in 1920-1. The former of these concerns came into being in January, 1921, and the latter has taken over the work of the S.N.E.T.A. as from June 1st, 1922; and a special contract is at present under discussion with the Belgian Government concerning the operation of air lines in Belgium and the Colonies.

R.A.F. INTELLIGENCE.

An Investiture.

H.M. the King held an Investiture at Buckingham Palace on July 10th. Among those in attendance upon His Majesty was Air Chief Marshal Sir Hugh Trenchard, Bart., K.C.B., D.S.O. (Principal Air Aide-de-Camp).

The following were invested with the Insignia of the respective divisions of the Orders into which they have been admitted :

The Most Honourable Order of the Bath, Companion (Military division), Air Commodore John Steel.

The Distinguished Service Order, Companion, F/Lt. Howard Long.

R.A.F. Appointments.

AIR MINISTRY, June 27th.

Air Commodore L. E. O. Charlton, C.B., C.M.G., D.S.O., from British Embassy, Washington, to R.A.F. Depot, Supernumerary, 1/5.

Grp/Capt. J. G. Hearson, C.B., D.S.O., from British Delegation (Air Section) Paris, to R.A.F. Depot, Supernumerary, 1/6.

Wing/Cmdr. R. J. F. Barton, O.B.E., from No. 28 Sqdn. (India), to R.A.F. Depot, Supernumerary, 10/5.

S/Ldrs. W. Sowrey, A.F.C., from No. 84 Sqdn. (Iraq), to R.A.F. Depot, Supernumerary, 14/4; F. A. Baldwin, from Iraq Grp. H.Q., to Aircraft Park Iraq, 14/3; J. W. Cruikshank, O.B.E., from No. 4 F.T.S. (M.E.), to H.Q. R.A.F. (Iraq), Supernumerary, to command Armoured Car Company (on formation), 16/5, R. Leckie, D.S.O., D.S.C., D.F.C., from Canadian Air Board, to No. 1 School of T.T. (Boys) (Halton), on ceasing to be seconded to the Canadian Air Board (to join 8/6), 27/5; W. Tyrrell, D.S.O., M.C., M.B., from R.A.F. Depot, to Research Laboratory and M.O.S. of I., Supernumerary, 1/6; R. A. G. Elliott, M.B., B.A., from R.A.F. Depot, to Central Medical Board, Supernumerary, 1/6.

F/Lts. R. C. L. Holme, M.C., from No. 70 Sqdn., to No. 1 Sqdn. (Iraq Group), 25/3; L. J. Maclean, M.C., from Central Air Communication Section (Iraq), to H.Q. R.A.F. (Iraq), 1/4; H. Leedham, from Aircraft Park (Iraq), to Iraq Grp. H.Q., 22/12; G. M. Moore, M.C., from Central Air Communication Section (Iraq), to H.Q. R.A.F. (Iraq), 1/4; A.W. Clemson, O.B.E., D.S.C., from R.A.F. Depot, to H.Q. R.A.F. (Iraq), 2/6; H. W. Evans, from Seaplane Training School, to H.Q. R.A.F. (Iraq), Supernumerary, 2/6; B. C. Tooke, from Seaplane T.S., to H.Q. R.A.F. (Iraq), Supernumerary, 2/5; W. C. Day, M.C., from No. 100 Sqdn., to No. 4 F.T.S., 2/6; H. A. Tweedie, O.B.E., A.F.C., from British Delegation (Air Section) Paris, to R.A.F. Depot, Supernumerary (to join 17/6), 1/6; A. H. S. Baker, O.B.E., from H.Q. R.A.F., Middle East, to R.A.F. Depot, 15/5, J. W. Harper, M.D., from No. 1 School of T.T. (Boys) (Halton), to R.A.F. Depot, Supernumerary, 6/6; J. F. Gallagher, from R.A.F. Hospital, Cranwell (Cranwell), to No. 1 School of T.T. (Boys) (Halton), 6/6; W. D. Miller, M.B., from Research Laboratory and M.O.S. of I., to R.A.F. Depot, Supernumerary, 7/6; H. W. Woollett, D.S.O., M.C., from No. 8 Sqdn. (Iraq), to Stores Depot, Iraq, 1/4; (Hon. S/Ldr.) G. D. Kerr, from Inspector of Recruiting (London), to R.A.F. Depot, Supernumerary, 23/5, F. G. Stammers, O.B.E., from School of T.T. (Men), to No. 2 F.T.S., 12/6; J. A. Barron, from Canadian Air Board, to Armament and Gunnery School, Supernumerary, 1/6, W. B. Everton, from School of T.T. (Men), to No. 2 F.T.S., 12/6; H. E. Flavelle, from No. 1 School of T.T. (Boys) (Halton), to R.A.F. Base, Leuchars, 12/6; T. Fawdry, M.B.E., from H.Q. M.E., to R.A.F. Depot, Supernumerary, 14/5; E. P. Punch, from R.A.F. Base, Gosport, to Aeroplane Exp. Estab., 25/5; (Hon. S/Ldr.) A. E. F. Huntsman, from R.A.F. Depot, to Inspector of Recruiting, 29/5; J. Cahalane, M.B., from Aeroplane Exp. Estab., to R.A.F. Base, Gosport, 31/5; (Hon. S/Ldr.) F. W. Squair, T.D., M.B., to Inspector of Recruiting, 29/5.

AIR MINISTRY, June 30th.

PROMOTIONS.—The following officers are promoted to ranks stated, effect from June 30th.

GENERAL DUTIES BRANCH.—Air Commodore to be Air Vice-Marshal—O. Swann, C.B., C.B.E.

Grp/Capt. to be Air Commodore.—T. C. R. Higgins, C.M.G.

Wing/Cmdrs. to be Grp/Capts.—A. Fletcher, C.M.G., C.B.E., M.C., P. B. Joubert de la Ferté, C.M.G., D.S.O., R. P. Mills, M.C., A.F.C.

S/Ldrs. to be Wing/Cmdrs.—W. C. Hicks, A.F.C., J. T. Babington, D.S.O., E. M. Murray, D.S.O., M.C., V. O. Rees, O.B.E.

F/Lts. to be S/Ldrs.—J. C. Russell, D.S.O., A. R. Arnold, D.S.C., D.F.C., C. J. Mackay, M.C., D.F.C., A. Gray, M.C., R. H. Kershaw, R. Graham, D.S.O., D.S.C., D.F.C., H. S. Powell, M.C., C. F. Gordon, O.B.E., M.C., D.F.C., E. B. Beauman, A. S. C. Maclaren, O.B.E., M.C., A.F.C., H. J. Payn, N. H. Bottomley, A.F.C., L. C. Keeble, T. F. Hazell, D.S.O., M.C., D.F.C., A. W. F. Glenny, M.C., D.F.C., F. E. P. Barrington, H. G. Smart, D.F.C., H. I. Hanmer, D.F.C.

F/Os. to be F/Lts.—S. F. Vincent, A.F.C., S. E. Adams, C. B. Riddle, H. V. Rowley, D. K. W. Thompson, L. G. Maxton, W. F. Dickson, D.S.O., the Hon. J. H. B. Rodney, M.C., I. M. Matheson, N. P. Dixon, A.F.C., A. L. Chick, A.F.C., E. R. C. Scholefield, D.C.M., D. H. de Burgh, A.F.C., A. J. G. Styran, M.C., A.F.C., W. L. Fenwick, E. J. McLoughlin, S. Smith, D.C.M., B. Ankers, D.C.M., E. Thornton, G. H. Martingell, R. P. M. Whitham, M.C., W. R. Curtis, F. Leathley, M.C., W. K. Mercer, A. C. Sanderson, D.F.C., M. Ballard, J. A. W. Binnie, R. Harrison, D.F.C., P. M. McSwiny, E. G. Hilton, A.F.C., H. S. P. Walmsley, M.C., J. M. Mason, D.S.C., D.F.C., E. R. B. Playford, H. L. Rough, D.F.C., A. L. Fiddament, C. L. King, M.C., D.F.C., N. H. Jenkins, D.F.C., D.S.M., G. S. Odie, D.F.C., G. Martyn, D. V. Carnegie, A.F.C., H. G. Crowe, M.C., H. P. Lloyd, M.C., D.F.C., H. G. W. Lock, D.F.C., A. Bottoms, S. E. Mailer, A.F.C., J. R. Cassidy, A. P. Ledger, O. G. Gregson, J. Duminy, R. F. Durrant, A.F.C.

STORES BRANCH.—F/Lts. to be S/Ldrs.—W. J. B. Curtis, O.B.E., F. H. Longhurst, M.B.E., C. Mason, W. F. Bryant, P. Adams, O.B.E., F/Os. to be F/Lts.—W. G. MacD. Nicholl, K. D. G. Collier, J. L. Denman, J. R. Nicholls, J. K. McDonald, T. A. G. Hawley, F. N. Trinder. Stores Branch Accountants.—F/Lts. to be S/Ldrs.—W. H. Holroyd, H. J. Down, C. G. Murray, O.B.E., P. J. Wiseman, T. H. Evans. F/Os. to be F/Lts.—R. Byrne, M.C., J. S. Griffiths.

MEDICAL SERVICE.—Wing/Cmdr. to be Grp/Capt.—C. E. C. Stanford, D.S.O., M.B., B.Sc. S/Ldrs. to be Wing/Cmdrs.—W. Tyrrell, D.S.O., M.C., M.B., B. A. Playne, D.S.O., M.B., B.A., H. A. Treadgold, M.D., B.A., D. Ranken, M.S., B.S., F.R.C.S. F/Lts. to be S/Ldrs.—E. P. Punch, J. H. Porter, M.C., M.B., R. W. Ryan, M.B., H. S. C. Starkey, O.B.E., M.D., M.A. F/Lts. to be Hon. S/Ldrs.—H. B. Smith, M.B., E. Brown, H. B. B. Greene.

CHAPLAINS' BRANCH.—The Rev. H. McCalman, M.C., M.A., resigns permanent commission, July 1st.

NURSING SERVICE.—Staff Nurses promoted to rank Sister—Miss N. G. Rees, Miss E. L. Whittingham, July 1st.

AIR MINISTRY, July 4th.

Wing/Cmdrs. A. V. J. Richardson, O.B.E., M.B., D.P.H., from H.Q. R.A.F., Middle East, to R.A.F. Depot, Supernumerary, 31/5; A. V. Bettington, C.M.G., from Half Pay List, to Command No. 12 Wing H.Q. (Ireland), 1/6.

S/Ldrs. R. P. Willock, to School of T.T. (Men), 1/6; A. S. Morris, O.B.E., from No. 1 F.T.S., to H.Q. (Inland Area), 22/6, H. E. Rowley, from C.A.A.D., to H.Q. R.A.F., Cranwell, 15/6; C. S. Wynne-Eyton, D.S.O., from H.Q. R.A.F. (Ireland), to command Irish Flight, 1/5; W. W. Shorten, F.R.C.S. (E), from No. 1 School of T.T. (Boys) (Halton), to R.A.F. Depot, Supernumerary, 6/6; A. J. Miley, O.B.E., from Air Ministry (D.G.S.R.), to No. 4 F.T.S., 29/4; A. Corbett-Wilson, from No. 1 F.T.S., to Aircraft Depot, Egypt, 29/4.

F/Lts. A. D. Pryor, from No. 100 Sqdn., to No. 207 Sqdn., 21/6; P. G. N. Ommanney, from Air Ministry (D. O. I.), to R.A.F. Depot, Supernumerary, 15/5; J. F. Roche, from Experimental Section, R.A.E., to School of Army Co-operation, 3/7; D. Le Bas, from C.F.S., to R.A.F. Depot, 17/6; H. E. Hayes, to H.Q. R.A.F., Cranwell, on appointment to Temporary Commission, 16/6; A. H. Wann, from Half-Pay List, to R.A.F. Depot, Supernumerary, 16/6; W. E. Hodgins, M.B., from Research Laboratory and M.O.S.I., to R.A.F. Depot, 19/6; T. L. P. Harries, M.B., from No. 1 F.T.S., to C.F.S., 15/6; F. G. Stammers, O.B.E., from School of T.T. (Men), to H.Q. I.A., 18/6; A. C. Collier, from R.A.F. Depot, to No. 39 Sqdn., 26/6; H. Sutherland, M.B.E., from C. and M. Party, Donibristle, to Marine and Armament Experimental Establishment, 16/6; D. O. Boddie, M.B., from Stores Depot, Egypt, to R.A.F. Trans-Jordania H.Q., 20/5; J. T. Forbes, from No. 14 Sqdn., to No. 4 F.T.S., 27/5; W. D. Miller, M.B., from R.A.F. Depot, to Marine and Armament Experimental Establishment, 15/6; W. H. Oakey, from Irish Stores and Repair Unit, to H.Q. R.A.F. (Ireland), 1/5; R. A. Young, from R.A.F. Depot, to No. 12 Wing H.Q., 3/6; J. A. Glen, D.S.C., from Canadian Air Board, to R.A.F. Depot, Supernumerary, 27/5; R. H. Smyth, M.C. (Stores), from R.A.F. Depot, to No. 1 Stores Depot, 16/6; L. Game, to R.A.F. Cadet College (Cranwell), on appointment to Temporary Commission, 21/4; S. N. Cole, from Palestine Wing H.Q., to H.Q. R.A.F., Iraq, Supernumerary, 14/5.

AIR MINISTRY, July 7th.

Air/Com. E. A. D. Masterman, C.M.G., C.B.E., A.F.C., from H.Q. Coastal Area, to Half Pay List, on ceasing to be attached to Air Ministry (D. O. I.), 10/6.

Wing/Cmdrs. J. T. Cull, D.S.O., from Air Ministry (D. T. O.), to H.Q. (C. A.), Supernumerary, 17/7; H. R. Nicholl, O.B.E., from No. 7 Group H.Q., to Air Ministry (D. T. O.), 3/7.

S/Ldrs. W. J. Y. Guilfoyle, O.B.E., M.C., from No. 208 Sqdn. (M. E.), to command School of Photography, Supernumerary, 1/7; C. S. Wynne-Eyton, D.S.O., from Irish Flight, to R.A.F. Depot, Supernumerary, 25/6.

F/Lts. W. A. C. Morgan, M.C., from Instrument Design Estab., to R.A.F. Depot, Supernumerary, 17/7; C. H. Tancred, M.B.E., from R.A.F. Depot, to Inspector of Recruiting, 13/7; N. R. Fuller, from R.A.F. Depot, to No. 1 F.T.S., 1/7; A. J. Brown, D.S.O., from Research Laboratory and M.O.S.I., to R.A.F. Central Hospital, 26/6; H. C. Perkins, from Research Laboratory and M.O.S.I., to R.A.F. Base, Gosport, 26/6; J. W. Woodhouse, D.S.O., M.C., from C.F.S., to No. 1 F.T.S., 1/7; A. Lees, from C.F.S., to No. 1 F.T.S., 1/7; J. K. Summers, M.C., from C.F.S., to No. 5 F.T.S., 1/7; B. McEntegart, from C.F.S., to No. 2 F.T.S., 1/7; J. J. Williamson, A.F.C., from C.F.S., to No. 100 Sqdn., 1/7; J. F. Gordon, D.F.C., from No. 207 Sqdn., to School of T.T. (Men), 1/7; H. E. P. Wigglesworth, D.S.C., from R.A.F. Depot, to Irish Flight, 26/6; P. T. Rutherford, O.B.E., from Research Laboratory and M.O.S.I., to R.A.F. Hospital, Cranwell, 26/6; J. E. B. B. Maclean, D.S.C., from No. 267 Sqdn., to No. 4 F.T.S., Supernumerary, 10/6; W. H. De W. Waller, A.F.C., from No. 100 Sqdn., to Palestine Wing H.Q., Supernumerary, 15/6; A. R. T. Pipon, D.S.C., from H.M.S. *Pegasus*, to H.Q. R.A.F., Supernumerary, 10/5; E. D. Davis, from No. 267 Sqdn., to H.M.S. *Pegasus*, 7/6.

Erratum.

In THE AEROPLANE of May 17th a photograph appears showing Lady Cox presenting prizes at the R.A.F. Championships at Baghdad. It is stated on the best possible authority that Lady Cox is seen actually presenting the Inter-unit Relay-race (1 mile) Cup to No. 70 Squadron, and not the Championship Cup to No. 6. Apologies to 70 Squadron.

Ex.-W.R.A.F. and the British Legion.

The following letter from the former Commandant of the W.R.A.F. appears in the June issue of the Old Comrades' Association W.R.A.F. Leaflet :—

"On Whit Monday, at their first Annual Conference, the British Legion decided to admit ex-Service women to ordinary membership on the same terms as ex-Service men, and I would therefore urge all Old Comrades to join their local Branch of the Legion forthwith. The ex-Service men's Clubs will of course remain clubs for men, and our clubs will still be clubs for women, but in everything that affects the development of the Legion and the well-being of those who served, of their dependants and especially of the disabled, it is up to us to co-operate with the men of our branches. Among all who served during the War, we, the ex-Service women, are only a small section; we have not asked for special representation or special consideration: the status of full members of the Legion is good enough for us.—(Signed) H. C. I. GWYNNE-VAUGHAN, President, W.R.A.F.O.C.A."

Gosport Sport.

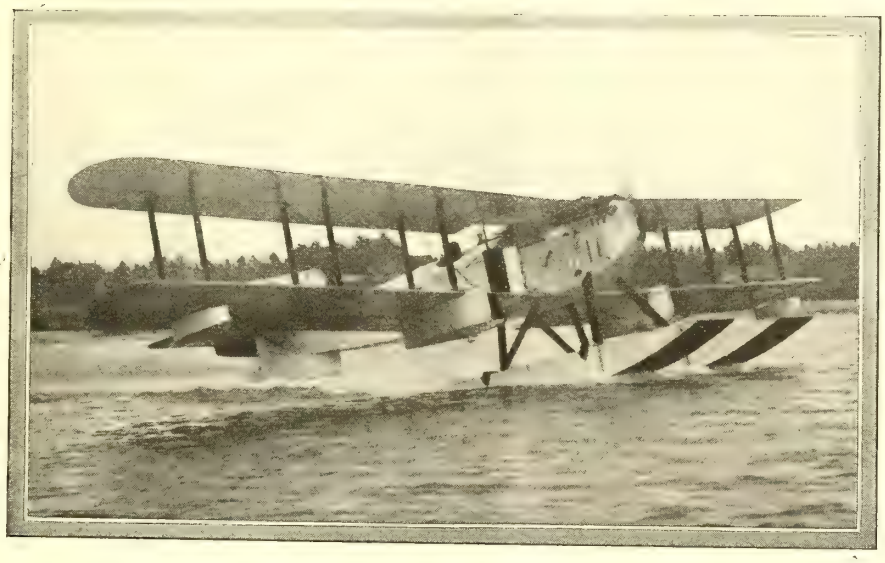
The R.A.F. Gosport held their Annual Sports at Fort Grange on June 14th. The introduction of the team system added considerably to the general interest in the sports. Mrs. Forbes, the wife of Grp/Capt. J. L. Forbes, O.B.E., presented the prizes.

The Flight Championship Cup was won by the Torpedo Training Flight with 57 points, Workshop Riggers being second with 52 points and Headquarters (A) third with 48 points. The individual champion was AC. Mackenzie with 13 points. The Inter-Flight Tug-o'-War was also won by the Torpedo Training Flight.

Other events were won by the following :—100 yards (h'cap),

(*Continued on page 30*).

ACROSS THE SOUTH ATLANTIC



FAIREY SERIES III LOAD CARRYING SEAPLANE
fitted with a 360 h.p. Eagle VIII Rolls-Royce Engine.

THE FIRST TRANSATLANTIC FLIGHT from East to West was accomplished by Com. Sacadura Cabral and Capt. Gago Coutinho on a

FAIREY SERIES III LOAD CARRYING SEAPLANE

carrying **3,100 lbs. of useful load** with **one 360 h.p. engine.**
THE FULL LOAD WAS LIFTED FROM THE SEA IN MID-ATLANTIC.
Speed with full load, **83** knots. Landing speed with full load, **43** knots.

THIS MACHINE WAS SUPPLIED UNDER AN ABSOLUTE GUARANTEE OF PERFORMANCE.

A similar Guarantee is available to all Purchasers of Fairey Aircraft.

Fairey Series III Load Carrying Aircraft can be supplied fitted for all Commercial Purposes—Passenger and Mail Carrying, Etc.—and are fitted with Sea, Land or Amphibian Chassis.

ALL MACHINES ARE FITTED WITH FAIREY PATENT VARIABLE CAMBER WINGS GIVING HIGH PERFORMANCE AND LOW LANDING SPEED.

THE FAIREY AVIATION CO., LTD.,

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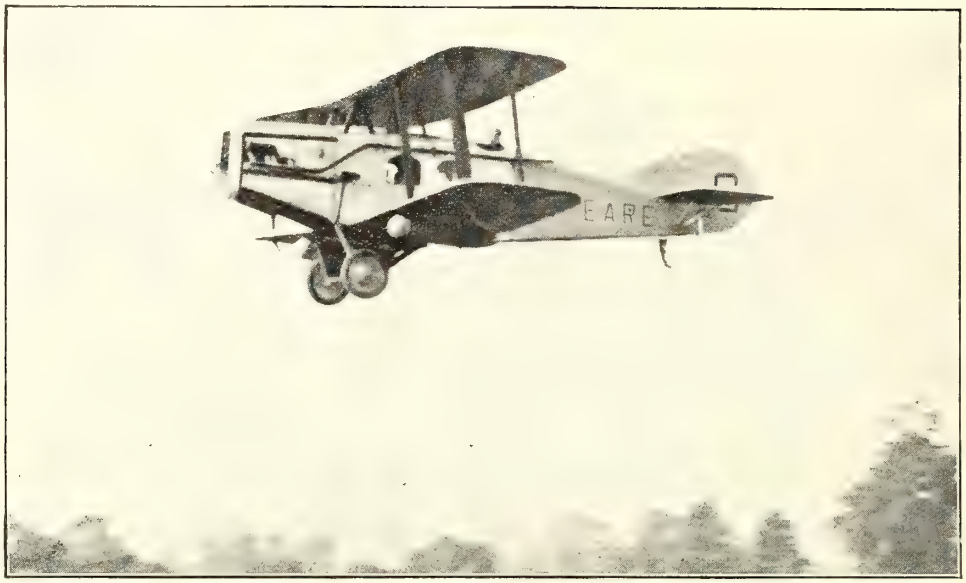
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Mr. A. Baldwin Raper, M.P., writing in the Daily Mail, pays a tribute to the WESTLAND LIMOUSINE, he says:—

"On June 7th I flew from London to Paris in a WESTLAND aeroplane together with my wife, who—apart from being a bad sailor—had only previously been up in the air for a few brief "joy rides." We had the window full open all the way, and although we passed through about fifteen minutes of quite rough weather over the French coast, my wife felt absolutely fit both during the flight and after arrival at Le Bourget."

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THE WEEKLY COMMENTARY.

That technical progress in the design and use of aircraft may depend very largely upon purely political considerations is the thesis developed in an article below.

The argument evolved is that however important may be the development of Air Service Auxiliaries to the two older Services, the subordination of the Air Force to those Services will necessarily limit the technical development of Air Power to within narrowed limits.

Incidentally the value of stubborn ignorance—in the right place—is revealed.

Regulations made by the Secretary of State for Air, under the powers conferred by a recent Act of Parliament, concerning the investigation of aircraft accidents, have just been issued.

These regulations—a *précis* of which is given hereafter—provide for the compulsory notification of serious accidents, give power to form a Court of Enquiry with all necessary powers, and provide for the publication of the report of such a Court at the discretion of the Secretary of State.

Hitherto the power of publication of such a report has not existed, and although up to date little evil has resulted, it is obviously in the public interest that such powers should exist and should be used.

The Air Ministry has recently published a modification of the "Schedule of Load Factors for Commercial Aircraft" which was originally published in March, 1920. The modifications introduced are not very great, but do slightly relax the stringency of the strength requirements for the smaller types of civil aircraft.

POLITICS AND TECHNICS.

The Air Ministry and the Royal Air Force are at the moment very much in the limelight. The precise organisation of that Ministry and of that force, the amount of money which is to be placed at their disposal, and the manner in which that money shall be expended are matters of policy—and political discussions as such would be out of place in this section of an otherwise violently political paper.

Unfortunately in regard to aeronautics policy is not yet to be severed from technical considerations. To the naval architect it would be relatively immaterial if the political aspect of providing the Army with a military ship service were to enter the realm of political discussion to-day. The capacity of ships generally is known and established. If the Army decides that it wants ships to carry out certain military duties the naval architect can say at once "I can," or "I cannot, build a ship to do that job." One does not know quite certainly whether the Army knows enough about ships to specify duties for them within their capacity, but if it does not it should be able to find out fairly easily.

At the present moment nobody knows what aircraft cannot do. There are certain things which are known. The Army knows that aircraft can help it very appreciably in normal military operations. It can reconnoitre, control artillery, bomb lines of communication and carry out various other highly important duties.

What every Sailor Knows.

The Navy knows that it can aid it in similar ways. It knows that it can be of inestimable value in the hunting down and destruction of submarines. It knows—though it does not like admitting it—that the possibility of aircraft attacks on war ships of the most modern types is at least a matter for serious consideration.

Neither the Army nor the Navy know whether in fact aircraft are capable now or are likely to be capable in the near future of rendering anything more than auxiliary services of certain fairly clearly defined types in a war of the first magnitude.

Universal Ignorance.

And the Army and the Navy are not alone in that ignorance. For in fact nobody knows. And nobody is likely to know with any certainty for some time yet.

An aeroplane can sink a battleship. Therefore aircraft are capable of deciding a naval war. Is this true? It is not necessarily so. One man armed with a brace and bit can also sink a battleship, and that one man might conceivably dispose of a hostile fleet if opportunity served him. If aircraft can certainly make—and make use of—the opportunity to sink a hostile fleet in war time, then they can decide a naval war without external assistance.

An aeroplane can drop bombs—and other things—on cities, factories, railways and roads. Potentially aircraft can paralyse any civilised community and so can prevent it from waging effective war. Can aircraft therefore decide a land war? Yes, under precisely the same limitations as aircraft can decide a naval war. That is, if they can both make and use the opportunity to paralyse the specific enemy community in question. Making the opportunity is essentially what our war experts call strategy. Using that opportunity when it is made is tactics—plus certain other factors.

Performance and Policy.

How the desired opportunity may best be made—that is the correct strategy to be employed—in any warlike operation is determined by many factors. Among these are the accessibility of the objectives to be attacked—relatively to the capacity of the means of transport available. One might propose to blow up an enemy city. Given the necessary explosives one may transport them to the objective in many ways. They might be pushed there in hand-carts. Very obviously somewhat different strategy would be required if this method were chosen rather than that of taking them to the objective in aeroplanes.

Equally would the tactics employed when in the vicinity of the objective be widely different in the two cases.

The essential fact is that both strategy and tactics—fixed and determined as they are in their essential principles—are dependent in every detail upon the performance of the tools available for each given operation as well as on the specific nature of that operation.

And, so far as air warfare is concerned, we do not yet know that the aeroplane of to-day is not to the aeroplane of to-morrow as the wheel-barrow is to present aircraft. The operations which we know can be carried out by aircraft are auxiliaries to the conduct of a first-class war. We believe that in some first-class wars aeroplanes are capable of more than auxiliary operations. We believe that in the near future the performance of aircraft will be so greatly improved that it will be possible for them to assume the main responsibility for the conduct of any war.

But until we have those improved aircraft and know precisely the limit of their capacity we cannot evolve strategical and tactical schemes for their effective use. When we have evolved them we cannot know, till they have been tested in actual war, that those schemes are sound in detail and effective in practice.

It is vitally important that the study of aircraft and their application to all the operations of war should be studied in the most thorough manner. It is all very well for an Army or a Navy to take over the responsibility of developing their

own auxiliary services Obviously they are not the right bodies to develop a Service which may entirely replace them for major operations by the development of an entirely novel application of the principles of strategy and tactics. They cannot be expected willingly to surrender themselves to suppression, and without good will such a new development will not be pressed forward actively.

The Value of Pig-Headedness.

When the First Lord of the Admiralty states that the Air Force could never be a substitute for the Navy he makes a positive assertion concerning a matter on which he cannot possibly have any sufficient knowledge.

It is equally true that when an enthusiastic supporter of the Air Force makes the equally positive assertion that Air Power is an effective substitute for the Navy he is also speaking without adequate knowledge.

It is very obvious, however, that the First Lord's belief is a fit and proper one to be held by one responsible for Naval Policy. Such a belief will lead him to at least the effort to maintain a Navy which is proof against air attack. Equally the opposite view is a fit and proper one to be held by those who control Air Force Policy.

But it is equally obvious that it would be fatal to place the development of Air Power in the hands of those who hold naval opinions—just as it would be fatal to hand over the Navy to Admiral Sir Percy Scott. For it is not to be forgotten that at present, at any rate, it is necessary for the good of the Air Force that we should maintain a highly efficient Navy. A weak and inefficient Air Force might convincingly demonstrate the uselessness of a still weaker and less efficient Navy. If the Air Force is to replace the Navy this is not enough. And if we are to develop a really effective Air Force as our first line of defence, that Air Force will need a keen and efficient Navy alongside it to keep it up to scratch.

From the technical point of view, if the efforts now being made by the representatives of the older Service to harness the Air Ministry to the task of providing co-operation forces for naval and military work succeed it will mean that much of the existing incentive to improvement of the aeroplane will be lost. Aircraft will be demanded for specific services which they are known to be competent to discharge, but the search for aeroplanes to carry out duties of which the present types are incapable will either cease or will be greatly slackened.—W. H. S.

THE INVESTIGATION OF ACCIDENTS.

Under the powers conferred by the Air Navigation Act, an Order—to be known as "The Air Navigation (Investigation of Accidents) Regulations, 1922," has been made by the Secretary of State for Air.

The regulations apply to accidents arising from or in the course of air navigation occurring in or over the British Isles, or elsewhere to aircraft registered in the British Isles.

The regulations provide for the compulsory notification of any such accident which involves death or personal injury to any person, or serious structural damage to the aircraft, or is reasonably believed to have been caused or contributed to by the failure in the air of any part of the aircraft or the pilot. If the accident occurs in the British Isles, notice is to be sent by telegram to the Air Ministry, and the local police are to be notified. If elsewhere the notice is to be sent in writing to the Air Ministry. The owner or hirer of the aircraft is responsible for sending such notice within 24 hours of the occurrence if it happen within the British Isles.

The notice is to contain full particulars of the national and registration marks of the aircraft, name of owner, hirer, and pilot, the place, date, time and nature of accident, whether death or personal injury has resulted, and if so, to whom.

In case of accidents within the British Isles, the aircraft is not to be removed or interfered with until the expiration of three days from the notice, and in any case where the Secretary of State so directs, until the expiration of such longer period as may be so directed. Exceptions to this rule are made in so far as they may be necessary to extricate persons, goods, luggage, mails etc., or preventing damage by fire or obstruction to the public. In the case of wreck on water the aircraft or any parts thereof may be removed to the extent necessary to bring them to a place of safety.

The Secretary of State has powers to direct a preliminary enquiry into any such accident carried out by an authorised inspector of accidents. Such an authorised inspector is to have access to the wreck, may summon before him any person being either the owner, hirer or any employee of such owner or hirer, and require answers to such questions as he may think fit to make. He may also call for the production of all books, papers or documents which he may consider material.

The preliminary investigation shall be the subject of a report to the Secretary of State, and the latter may make public the whole or any part of such report

The Secretary of State may direct a formal investigation in any case which he may consider expedient, whether a preliminary investigation has been held or not. Such formal investigation shall be made by a person appointed by the Secretary of State, who may be assisted by assessors having legal or technical qualifications.

The investigation shall be made in open court, and the appointed person shall have for the purposes of the investigation the powers of a court of summary jurisdiction and all the powers of an Inspector under the Railway Regulations Acts, 1840 to 1889. The court may summon witnesses, administer an oath to any witness, and allow expenses to witnesses, and may make an order that costs and expenses of the investigation be borne by any person whom it finds to have been responsible by act or default for the accident.

The court shall submit a report to the Secretary of State, giving its findings as to the causes of the accident with observations or recommendations for the avoidance of similar accidents, as it may think fit.

The Secretary of State may, as he thinks fit, publish the whole or any part of such report.

MR. HANDLEY PAGE ON THE DEVELOPMENT OF AIR TRANSPORT.

A paper by Mr. Handley Page on the Development of Air Transport was read very recently before the Association des Ingenieurs of Liège by M. Allard, head of the Technical Section of Belgian Aeronautics.

The paper discusses the origin of the present difficulties met by the aircraft industries—the artificial development of performance at the expense of economy, accompanied by an enormous output of machines during the war, followed by the sudden disappearance of the war outlet for machines. Machines of the type developed by the war were far too wasteful for commercial purposes, and hence the aircraft maker has to face the slow building up of a business in commercial aircraft.

Subsidies have been widely used to help over this critical stage, but even so development has been disappointingly slow. This is attributable to many causes—among them defects of reliability and regularity, the occurrence of accidents, and the high cost of air transport.

Some of these causes are independent of the machines used. Reliability and regularity of service depends largely on ground organisation just as railway regularity depends on proper signalling organisation.

Some are due directly to machines. Forced landings due to engine trouble can be reduced not only by improved engines and improved installations but also by the development of machines which do not need their engines to work at nearly full load for the whole flight.

The dangers of forced landing may be reduced by reducing landing speed.

High cost—in Mr. Handley Page's opinion—is not such a deterrent as might be imagined, but reduction of costs is obviously desirable. The greatest improvements are to be looked for in the aerodynamical development of the aeroplane.

The two requirements of low landing speed and of high cruising speed with low engine power are unfortunately mutually inconsistent with one another for present aeroplane types. If one loads lightly enough to give a low landing speed then a reasonable top speed can only be obtained at an angle of incidence much less than that of least resistance.

If one loads up the wings to give the desired cruising speed at the most efficient angle of incidence, the landing speed is far too high to be practicable.

A variable wing—such as the slotted wing—offers the only possible means of escape. It is as necessary to the aeroplane as a gear box to the motor car. With the slots open it gives a big lift co-efficient, and so permits high loading and low landing speed. It gives a good L/D ratio at slow speeds and so allows a good climb. And with the slots closed it behaves like an ordinary wing heavily loaded—that is, it allows a high speed and economy to be combined.

This means that speed can be obtained for reduced power—and so allows the engine to be run easily—one road to improved engine reliability.

The heavy loading means small wings—and these can be light and require fewer struts and wires than the normal type. This means lower power again—and therefore a greater ratio of useful weight to power.

Numerous difficulties of detail are considered which beset the way to improved aeroplanes, but Mr. Handley Page demonstrates that it is only along the lines of improved aerodynamic design that success in the development of commercial aircraft is to be sought hopefully.

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LOAD FACTORS FOR COMMERCIAL AIRCRAFT.

The Air Ministry have just issued a new schedule of the load factors to be required of commercial aircraft before they can be granted an airworthiness certificate. This schedule, which is a slight amendment of the original schedule issued in March, 1920, supersedes the original and is now in force.

The new schedule is the result of certain criticisms made by designers that the original schedule called for excessive strength and therefore for unnecessarily heavy construction. These criticisms were submitted to the Load Factor Sub-Committee of the Aeronautical Research Committee.

The Sub-Committee's report has now been published and contains certain suggestions for the foundation of a logical scheme for stressing aircraft. It does not, however, feel that in the present state of knowledge anything more than a slight revision of the previous schedule can be justified.

In effect a slight reduction has been made in the load factors specified for commercial aircraft—no change being made in the manner of computing the said factors, except in regard to undercarriages. Load factors for undercarriage are now specified in terms of the maximum compressive forces encountered when the machine lands at a vertical velocity of (13 + 0.1 Vs) ft. per sec. where Vs is the stalling speed in feet per second. In the previous schedule a static load factor—based on total weight of machine—only was specified.

The new load factors are as follows :—

		Total Weight of Aircraft. 2,500 lb. or less.	30,000 lbs. or more.
a	Factor with C.P. in most forward position, engine off	5.5	4.0
a_1	As a, engine on		
b	Factor with C.P. in position of maximum horizontal speed	4	3
c	Factor in terminal nose dive	1.25	
e	Load factor on undercarriage	1.15	

For cases a, a_1, and b the factor decreases from the highest value in direct proportion with the increase in weight.

THE ROYAL AERONAUTICAL SOCIETY.

At a council meeting held on June 28th, Professor Leonard Bairstow, C.B.E., F.R.S., Fellow, was elected chairman of the Royal Aeronautical Society for the year 1922-23 in succession to Lieutenant-Colonel M. O'Gorman, C.B., whose period of office terminates on September 30th next.

The following members were elected :—Associate Fellow, Mr. J. E. Dumbleton, A.M.Inst.C.E.; Members, Mr. B. L. Martin, B.Sc., Air Vice-Marshal Sir Geoffrey H. Salmond, K.C.M.G., C.B., D.S.O.

AN INTRODUCTION TO AERIAL NAVIGATION.

Traité Pratique de Navigation Aérienne, by MM. A-B. Duval et L. Hébrard. 60 p.p. 4to. Paris, Gauthier-Villars et Cie., 55, Quai des Grands Augustins. Price 6 francs.

In this book, which is reprinted from a series of articles which have appeared during the past few months in *L'Aéronautique*, the authors have dealt in an extremely clear and able manner with the general principles and practice of aerial navigation. Both the authors are pilots—one of them is a naval, the other a military officer—and they have regarded their task from a severely practical point of view.

Any intelligent person who reads this work should have not the least difficulty in grasping the essential principles of navigation as applied to aircraft. And having grasped those he has probably learnt all that can be learnt from a book of any kind on the subject.

The book deals not only with principles, but describes in clear language the instruments used, and the operations involved in the use of those instruments, and having digested the book only practical experience should be needed to produce the competent navigator.

It can be thoroughly recommended to all those interested in the subject.

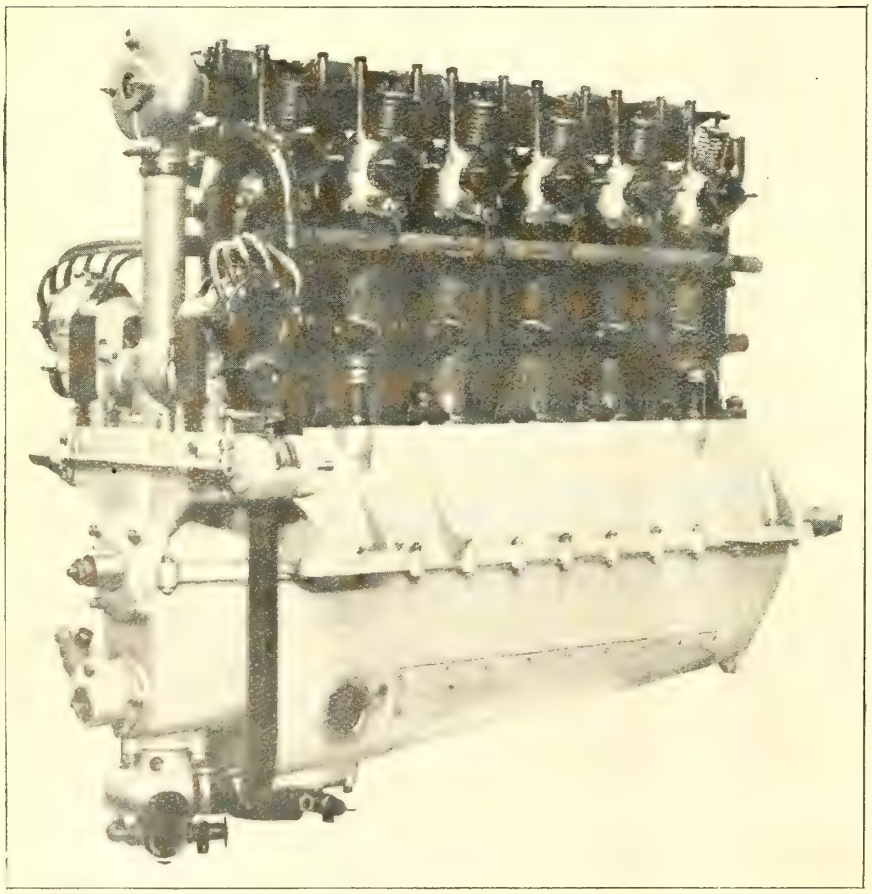
THE NEW B.M.W. ENGINES.

As was announced in this paper recently, the Bayerische Motor Werks of Munchen have just produced two new engines of the well-known B.M.W. type, best known by the 185 h.p. engine used in making a recent "American" world's record for duration, and so largely used in recent German aircraft.

The new engines both follow the general arrangement of this well-known B.M.W. III.a type.

The engine here illustrated is the smaller of the two. It is rated at 120 h.p. develops 140 h.p. at 1,400 r.p.m., and has a very low fuel consumption for so small an engine. It is known as the B.M.W. II.

The second engine is rated at 240 h.p. and develops 260 h.p. at 1,400 r.p.m. Very great attention has been paid to the reduction of fuel consumption and it is said that it can run on 170 grammes (.375 lbs.) per h.p. hour. This figure sounds highly improbable—the guaranteed figure of 195 grammes (.43 lbs.) is sufficiently extraordinary. This engine—like the earlier 185 h.p. one—is of the super-compressed over-dimensioned type and maintains its full normal output up to an altitude of about 12,000 ft. Owing to the restrictions on the construction of German aircraft and engines this type may not be manufactured in Germany at present, but doubtless steps will be taken to construct these engines in some other country.



Specification of the New B.M.W. Engines. Type B.M.W. II.

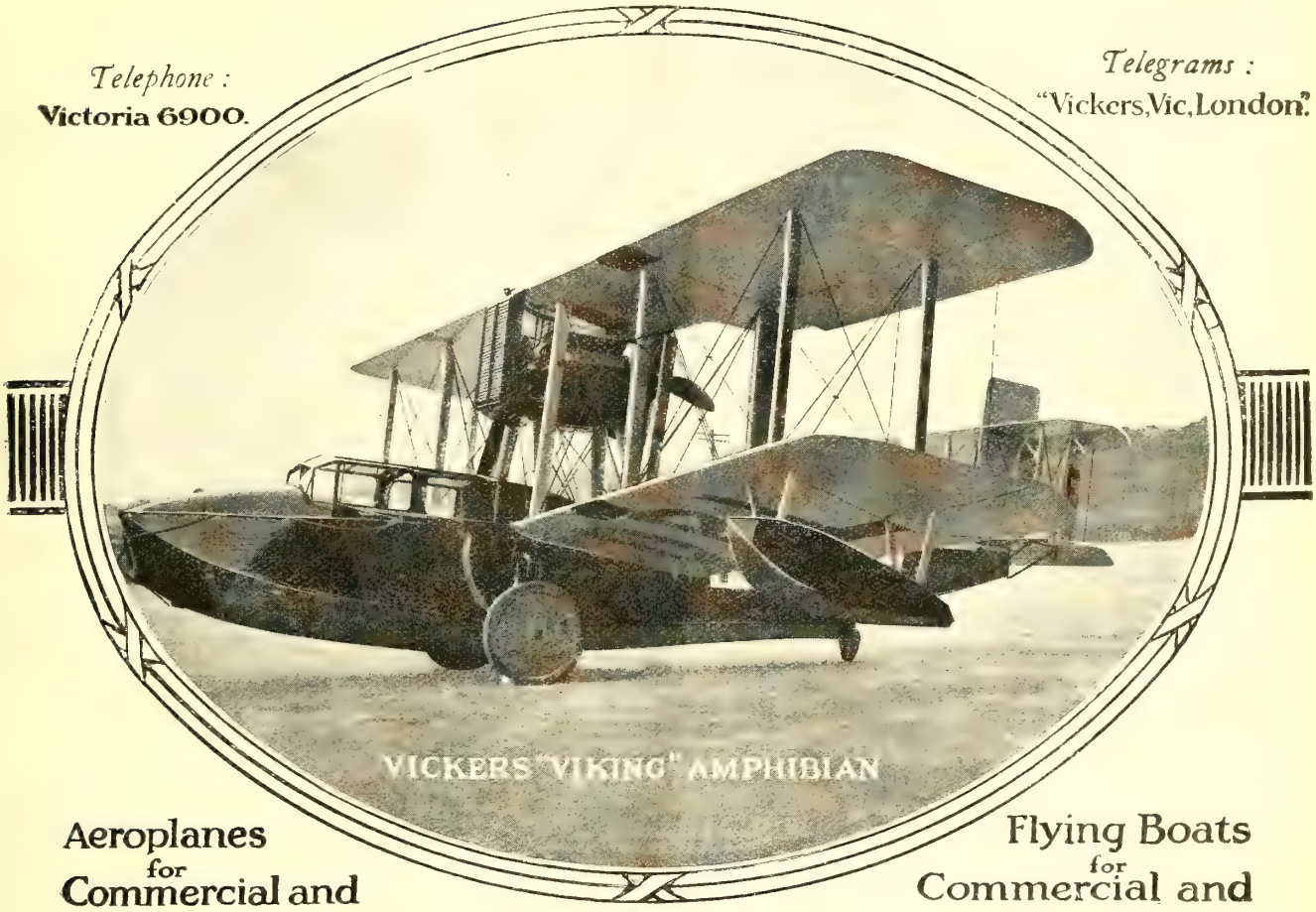
Normal power	120 h.p.
Full power (1,400 r.p.m.)	140 h.p.
No. of cylinders	6
Bore	120 m/m.
Stroke	120 m/m.
Weight dry	210 k.g.
Fuel consumption per h.p. hour	230 g. (.51 lbs.)
Oil consumption per h.p. hour	12 g. (.026 lbs.)

Type B.M.W. IV.

Normal power	240 h.p.
Max. power (1,400 r.p.m.)	260 h.p.
No. of cylinders	6
Bore	160 m/m.
Stroke	190 m/m.
Fuel consumption per B.H.P. hour	195 g. (.43 lbs.)

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Aeroplanes for Commercial and Military Use.

The Vickers "Viking" was classified FIRST in the following competitions at the INTERNATIONAL SEAPLANE COMPETITIONS at ANTWERP, July 1920.

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2. Fastest time over a given circuit
3. Climb to 1,000 metres.
4. Altitude with full load

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BRISTOL: 55, Park Street.

DUBLIN: 32, Nassau Street.

LEEDS: Greek Street Chambers, Park Row.

Flying Boats for Commercial and Naval Use.

Brief Specification:
Viking Mark IV

6 Passengers and baggage or 1,360 lbs Freight.
RANGE 340 miles.
SPAN: 50′ 0″
HEIGHT: 15′ 1″
LENGTH: 35′ 0″

The Vickers "Viking" was the winner of the FIRST prize of £10,000 for the Amphibian Class of Aircraft entered for the BRITISH AIR MINISTRY COMPETITION, September, 1920.

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A SIDDELEY SUCCESS.

The Armstrong-Siddeley 325 h.p. radial air-cooled engine known as the Jaguar has just very successfully completed its official Type Test under Air Ministry observation. This particular test was made under the new regulations which call for the whole of the 50 hours' test being made on 10 hour non-stop runs and the Jaguar is the first air-cooled engine—if not the first engine of any type—to pass the British tests under this rule.

The performance on test was most satisfactory, and both fuel and oil consumption were extremely good. Full details of the test and a description of the engine will be given in the immediate future.

THE AIRSHIP SCHEME.

Some weeks ago this paper mentioned the dilemma in which the Air Ministry was placed, in regard to the Imperial airship scheme put forward by Commander Burney, owing to the certainty that if they did not offer to support the proposed service financially the Admiralty undoubtedly would back it.

According to the *Times*, the Cabinet has received from both the Admiralty and the Air Ministry an expression of a willingness to devote part of their funds to the support of this scheme.

The Admiralty, it is stated, are ready to subscribe the whole amount of the subsidy asked for by the promoters. The sum is to be raised by economising in the construction of light cruisers.

The Air Ministry is not in a position to offer so large a sum, but it is naturally extremely anxious to retain under its control any aerial enterprise of this type. Very obviously the correct solution of the difficulty will be for the Cabinet to call for contributions from both Admiralty and Air Ministry, to place the scheme under the control of the Air Ministry, giving to the Admiralty proper representation on whatever body or committee may be charged with the protection of the Government interests in the scheme in order to ensure that the operations of the Company shall be carried on with a proper regard to the necessity for co-operation with the Navy in the event of war.

THE SUPPLY OF INSPECTED MATERIALS.

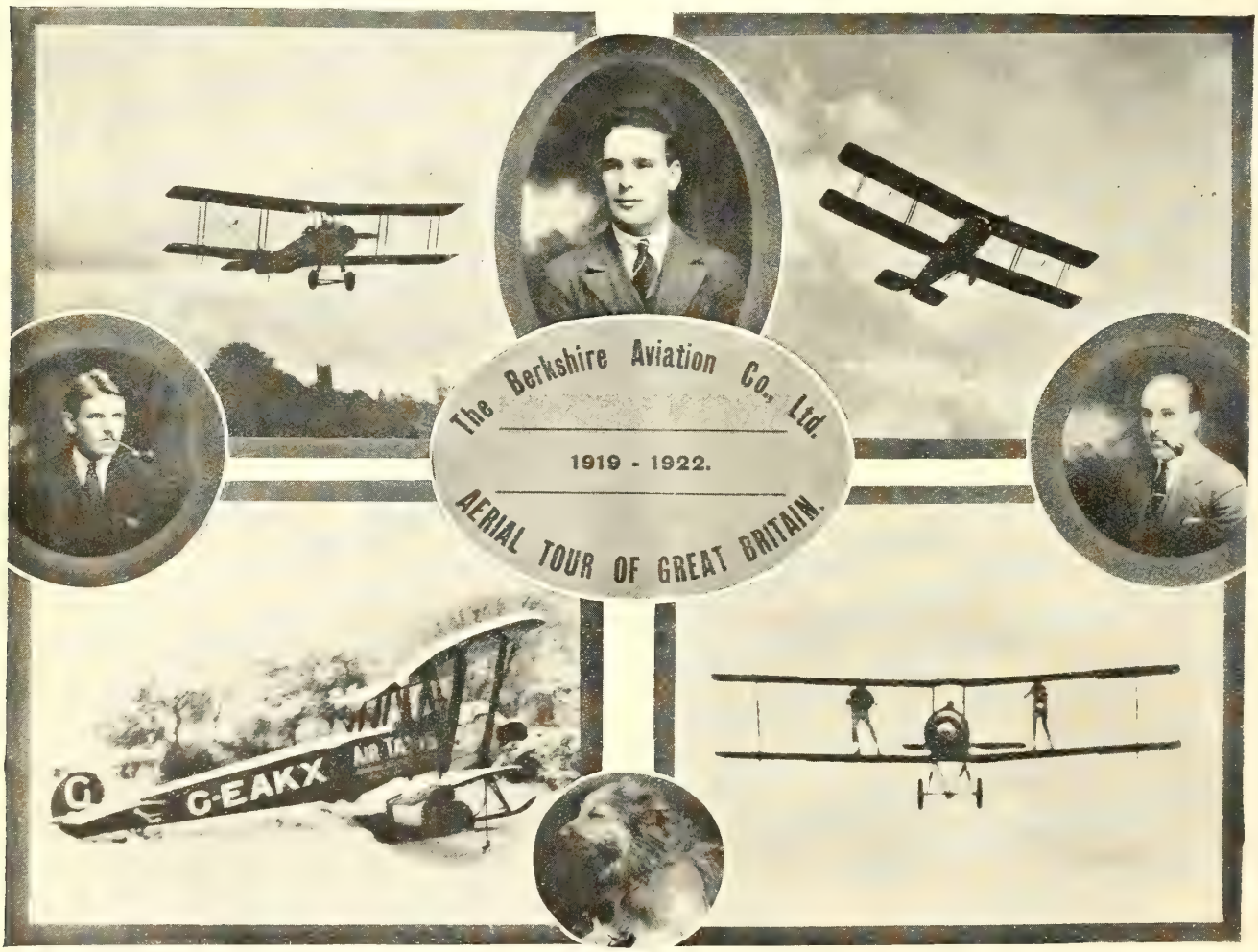
The Aircraft Inspection Department of Brown Bros. Ltd. is officially recognised by the British Air Ministry and all aircraft material supplied by them is carefully inspected to British Standard Engineering Aircraft Limits, and dispatched with covering release note. In addition they are prepared to undertake inspection of all kinds of aircraft material, including complete machines purchased in this country by foreign governments and constructors.

LIGHT PRODUCTS.

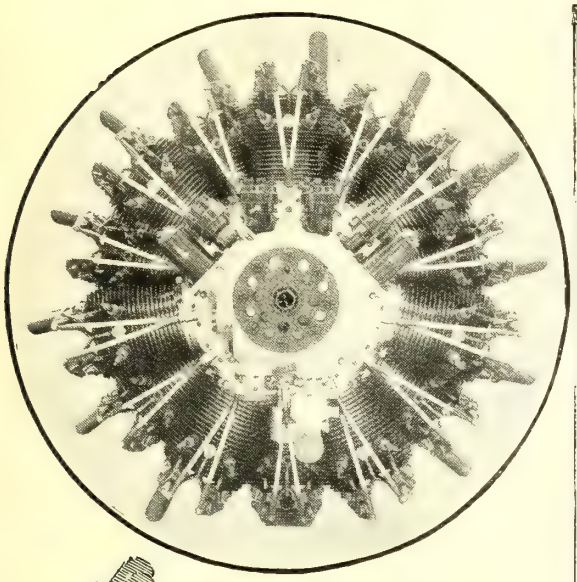
His many friends in the Aircraft Industry will be interested to know that Captain Raymond Billinghurst, formerly of Thos. Firth and Sons Ltd., of Sheffield, has joined the Light Production Company Ltd., of 60-66 Rochester Row, Westminster, S.W.1. Capt. Billinghurst was particularly well known to the aircraft trade owing to the fact that he was certainly the first representative in London of a Sheffield firm to specialise on aircraft steels, and the Aircraft Industry owes him a notable debt of gratitude for the energetic liaison work which he did in impressing on Sheffield the special requirements of the Aircraft Industry.

His new firm, the Light Production Company Ltd., the managing director of which is Mr. M. V. Roberts, makes a speciality of the light parts of internal combustion engines such as piston rings and gudgeon pins. A list to hand shows that the firm is prepared to supply from stock piston rings for several hundreds of different types of car and motor cycle engines. These rings are made from a special type of die cast iron and are treated by a special graduated hammering process to ensure that the ring bears equally all round the cylinder walls. The firm is able to guarantee delivery of orders within 24 hours.

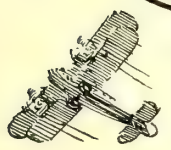
As regards gudgeon pins, these are made of steel to the firm's own specification and are, as the firm says, "guaranteed for ever." The prices of both piston rings and gudgeon pins are astonishingly low. The firm is equally prepared to manufacture any light metal parts either for motors or aeroplanes, and Capt. Billinghurst will be glad to hear from any of his old friends in the Aircraft Industry who would like quotations for such parts.

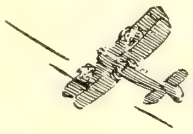


THE PIONEERS OF AERIAL TAXI WORK :—On the right, Mr. J. D. V. Holmes, the founder of the firm. At the top, Capt. Taylor, and on the left, Mr. Robinson, Directors, pilots and general workers. Below, Wilfred, the Wolfhound. All round, old G-EAKX, the much-enduring Avro.



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Telegrams—TETRAFREE, PICCY, LONDON. **Telephones—GERRARD 2312. REGENT 4728.**

(*Continued from page 20*).

F/O Riddle (10 3-5 secs.); 220 yards, F/O Riddle (25 1-5 secs.); 440 yards, AC. Mackenzie (59 4-5 secs.); 880 yards, AC. Mackenzie (2 mins. 16 1-5 secs.); 1 mile, Cpl. Palm (4 mins. 45 secs.); 3 miles, Cpl. Palm (16 mins. 24 2-5 secs.).

High jump, F/Lt Mackenzie (5 ft. 1 in.); Long jump, AC. Mackenzie (19 ft. 3¾ ins.); 120 yards hurdle race, AC. Styles (18 4-5 secs.).

880 yards relay : 1, H.Q. (A); 2, Torpedo Training; 3, Workshops Rigging. 1 mile relay : 1, Torpedo Training; 2, Workshop Engineers; 3, H.Q. (A).

Open Tug-o'-War : R.A.F. Base beat 3rd Batt. Rifle Brigade.

The C.F.S. and Netheravon Sports.

The combined C.F.S. and 1 F.T.S. Sports were held at Upavon on June 13th. Bad weather unfortunately prevented good times being made. The band of the C.F.S. played during the afternoon and Mrs. MacEwen presented the prizes.

The winners of the various events were as follows :—100 yards, F/O Clarke, C.F.S. (10 1-5 secs.); 220 yards, Sjt. White, C.F.S. (25 secs.); 440 yards, Sjt. White, C.F.S. (58 secs.); 880 yards, Sjt. White, C.F.S. (2 mins. 14 secs.); 1 mile, AC. Strevens, C.F.S. (5 mins. 1-5 secs.); 3 miles, AC. Strevens, C.F.S. (17 mins. 8-4 secs.).

High jump, F/O. Adams, 1 F.T.S. (5 ft. 2 in.); Long jump, F/O. Adams, 1 F.T.S. (18 ft. 1¾ ins.); 120 yards hurdle race, Sjt. Fretwell, 1 F.T.S. (18 mins. 1-5 secs.).

W.O.s and Sjts. Handicap, Sjt. Fretwell, 1 F.T.S.; Officers' handicap, 120 yards, Grp/Capt. MacEwen, S/Ldr. McCalum, F/Lt. Lowe; 1 mile (open), Pte. Austin, Wilts Regt.

Relay race, 1 F.T.S. Team; Officers' Tug-o'-War, 1 F.T.S. Team; Other ranks Tug-o'-War, 1 F.T.S. Team.

Band race, AC. Sutton, C.F.S.; Obstacle race, AC. Bidmead, 1 F.T.S.; Sack race, Sjt. Fretwell, 1 F.T.S.; Putting the shot, Sjt. Fretwell, 1 F.T.S. (31 ft. ½ in.); Tilting the bucket, AC. Glover and AC. Osborne.

Eastchurch Sports.

The Annual Athletic Sports were held on June 15th, the very fine programme being somewhat spoilt by the weather.

The star performers were L/AC. Goodman, who won the 220 yds., 440 yds. and Long Jump, and AC. Dyer (the Cross-Country Champion), who won the 3 miles and 880 yds.

The Inter-Flight Challenge Cup was won by No. 7 Flight with a score of 37 points, No. 10 Flight being runners up with 29 points.

The Victor Ludorum Cup, presented by Wing/Cmdr. A. W. Bigsworth, C.M.G., D.S.O., A.F.C., was won by L/AC. Goodman, who scored 19 points for his Flight.

Mrs. A. W. Bigsworth presented the prizes at the conclusion of the Meeting.

The results were as follows :—100 yds., F/O. R. J. Read (10-4.5 secs.); 220 yds., L/AC. Goodman (25 secs.); 440 yds., L/AC. Goodman (59 secs.); 880 yds., AC. Dyer (2 mins. 11 secs.); 1 mile, P/O. Embry (4 mins. 50 secs.); 3 miles, AC. Dyer (1), L/AC. Hirst (2), AC. Hambrook (3) (17 mins. 19 secs.).

High Jump, AC. Terrance (4 ft. 8½ ins.). Long Jump, L/AC. Goodman (19 ft. 5 ins.). 120 yds. Hurdles, F/O. R. N. Hesketh.

One Mile Inter-Section Relay, Flying Section (1) (L/AC. Goodman, AC. Dyer, L/AC. Sargeant, AC. Ferguson), No. 7 Flight (2).

Tug-of-War, Winners, H.Q.; Runners-up, No. 7 Flight. Putting-the-Shot, W.O.1. Parker (33 ft. 6 ins.).

Officers' 100 yds. H'cap. F/O. Lane (1), S/Ldr. Sparling and F/Lt. Capon (dead heat). Sjts. 100 yds H'cap., W.O.1. Skellard (1), Sjt. Cotterill (2), F/Sjt. Jenkins (3).

Manston.

The School of Technical Training (Men) held their Annual Sports on June 17th. Excellent form was shown by the competitors, particularly AC.'s Morgan and Morris. AC. Morgan is a great runner and one hopes to hear more of his future victories. AC Morris, a fine athlete, won the Victor Ludorum Cup for the highest number of points. The inter-Unit Challenge Cup was won by No. 3 sub-Section.

The Victor Ludorum Cup was presented to the winner by Mrs. Pitcher, the wife of Air Commodore Pitcher who was also present

Wing/Cmdr. Primrose showed himself well versed in the management of donkeys and carried off the Officers' Donkey Derby.

Musical Chairs on Donkeys for W.O.'s and Sjts. was won by S/M Bateman who was obviously possessed of far greater strength than his mount. Five clowns also added to the amusement of the afternoon.

The R.A.F. Manston Band played selections during the Meeting.

Wing/Cmdr. Landon had bad luck in slipping in the Officers' Open Handicap which was won by F/O. Parsons.

The winners of the various events were as follows :—

100 Yards, AC. Bailey. 220 Yards, AC. Morris. 440 Yards, AC. McCabe. 880 Yards, AC. Morgan. 1 Mile, AC. Morgan. 3 Miles, AC. Morgan. 1 Mile Championship, AC. Morgan. Long Jump, AC. Morris. High Jump, Cpl. Hart. 120 Yards Hurdles, AC. Davis.

W.O.'s and N.C.O.'s Flat Handicap, S/M. Reddock, 1; Sjt. Bedson, 2; S/M Bateman, 3. Officers' Flat Handicap, F/O. Parsons, 1; Wing/Cmdr. Primrose, 2; Air Commodore Pitcher, 3.

Relay Race, No. 1 sub-Section, 1; Armoured Car Section, 2; No. 3 sub-Section, 3. Putting-the-weight, AC. Ross. Tug-of-War, Armoured Car Section.

Three-legged Race, Cpl. Hart and AC. Davis. Sack Race, AC. Davis. Musical Chairs on Donkeys, S/M. Bateman, 1; Sjt. McGarry, 2.

C.S.F. Upavon.

Cricket.—The Central Flying School beat the Air Ministry at Upavon on June 21st and 22nd, by 113 runs and 1 wicket. In the first innings the C.F.S., made 115, F/O. Rose scoring 28 not out. S/M. Smith scored 23 and F/Lt. Lees and F/O. Clarke 10 each. For the Air Ministry, S/Ldr. Boyle took 5 wickets for 38. The Air Ministry then went in and knocked up a total of 74, S/Ldr. Hodsall contributing 22. F/O. Clarke for the C.F.S. took 2 wickets for 24, and Grp/Capt. MacEwen, 5 for 25

In the second innings the C.F.S. scored 239 for 9 wickets, the top score being 59 by F/O. Rose. AC.1. Gough made 37 and F/Lt. Thompson 44. The Air Ministry only made 167, of which F/O. Adams made 111 not out. F/O. Rose took 5 of their wickets for 32 runs.



THE R.A.F. RUGBY CUP.—The Winning Team from the Electrical and Wireless School, R.A.F., Flowerdown :—Back Row, left to right : Cpl. Sloan (linesman), AC. Wale, AC. Collins, AC. Cracknell, AC. Jervis, AC. Jewison, AC. Morris AC. May, AC. Brookes, F/Lt Mylne (Secretary). Front Row, AC. Macindoe, F/O. Duncan, S/Ldr. Gregory, Grp/Capt. Warrington Morris, F/Lt. Sugden (Captain), F/Lt. Butcher, F/Lt. Long, AC. Young.

AN ITALIAN AIR ATTACHE IN GREECE.

It has been reported that Major Cav. Enrico Cerasole, who for several years has been working on behalf of Italian aeronautical interests in Greece and the Orient, will be appointed Italian Air Attaché in Athens.

THE ITALIAN NAVAL AIR ESTIMATES.

The Italian Naval Air Estimates will be increased from It.£6,000,000 to It.£60,000,000, which represents the first result of the powerful and praiseworthy work of the Navy Minister the Hon. de Vito, who has placed the study of Naval Aviation in the hands of a Navy Board consisting of Admirals Thaon di Reval, Millo and De Lorenzo.—A. B.

U.S. ARMY RACERS.

For the forthcoming Pulitzer Trophy, which will be held at Detroit some time in October, it appears that official support from the U.S. Army and possibly the Navy will help to make this contest one of the most interesting of the year.

With a view to improving the breed of "Pursuit" aircraft the U.S. Army Air Service have placed contracts with four firms for the construction of nine racing machines, the qualities of which will permit their development into efficient Service aircraft. These firms are the Curtiss Aeroplane and Motor Corporation—two machines to be fitted with 375 h.p. Curtiss C.D.12 engines; the Loening Aeronautical Engineering Corporation—two machines fitted with 600 h.p. Packard engines; the Thomas-Morse Aircraft Corporation—two machines fitted with 600 h.p. Packard engines; and the Lawrence Sperry Aircraft Co.—three machines fitted with 390 h.p. Wright H.3 engines.

The Sperry machines will be cantilever monoplanes with retractable undercarriages and will be built to the design of Mr. Alfred Verville, of the Engineering Division, Air Service, McCook Field, Ohio.

The Curtiss, Loening and Thomas-Morse companies have been given considerable latitude in the design of their aircraft, the main purpose of the Air Service being to obtain a type of single-seater which would possess the highest possible performance applicable to pursuit work.

Were there no further entries the above machines would by themselves make a very interesting race, and probably will produce a mass of interesting information. Would that the Air Ministry could do likewise for the Deutsch Cup Race next September.

PILOTS' LICENCES.

Air Ministry Notice to Airmen No. 72 notifies:—

1. With reference to Notices to Airman Nos. 13, 28 and 55 of 1921, the technical examinations therein referred to will be brought into operation on and after 11th July, 1922, for all persons applying for licences as pilots of flying machines, or for renewal of such licences.

2. The subjects of these examinations are as follows:—

Class A Licences (for Private Pilots).

Knowledge of rules as to lights and signals, rules of the air, and rules for air traffic on and in the vicinity of aerodromes. A practical knowledge of international air legislation.

Class B Licences (for Pilots of Passenger or Goods Flying Machines).

As for Class A Licences, with the following additions: map reading, use of compass, location of position and elementary meteorology; practical knowledge of the special conditions of air traffic.

3. Attention is directed to the syllabuses of these examinations published with Notices to Airmen Nos. 13 and 55 of 1921.

4. The examinations, which will be *viva voce*, will be conducted by an Air Ministry Board, and in the case of applicants for licences for flying passenger or goods aircraft, or for renewals of such licences, will be arranged, whenever possible, to take place on the same day as medical examination.

INVESTIGATION OF ACCIDENTS.

Air Ministry Notice to Airmen No. 63 notifies:—

(1) Regulations have been published, pursuant to Section 12 of the Air Navigation Act, 1922, conferring powers on the Air Ministry in connection with the investigation of accidents to Aircraft.

(2) These regulations will apply to accidents which occur to any aircraft in the British Isles, or elsewhere to aircraft registered in the British Isles.

(3) It is provided by these regulations that accidents of certain descriptiins must be notified to the authorities as soon as possible. The responsibility for such notification will rest on the pilot, or, if the pilot is incapacitated by injury, on the owner or hirer of the aircraft.

If the accident occurs in or over the British Isles, notice must be given:—

(a) By telegram to the Air Ministry within 24 hours.

(b) To the local police.

If the accident occurs elsewhere than in or over the British Isles, notice must be sent in writing to the Air Ministry.

(4) The term "British Isles" used above does not include Southern Ireland.

(5) All pilots and others concerned in the operation of aircraft should make themselves acquainted with these regulations, which will be placed on sale at H.M. Stationery Office, or will be obtainable through any bookseller.

(6) The regulations come into force on the 12th July, 1922.

AIRCRAFT IN PARLIAMENT

The Equipment of the R.A.F.

On July 6th, replying to a question by CAPTAIN VISCOUNT CURSON, THE SECRETARY OF STATE FOR AIR said that his attention had been drawn to the statement issued by the Rolls-Royce firm that unless more orders can be given them for aircraft engines they will have to close down that branch of their business. CAPTAIN GUEST told the Noble Lord that owing to the necessity for National Economy drastic reductions were effected this year in the Air Estimates and no money is available to permit the Air Ministry to order aircraft. While he declined to be a prophet in his own country he assured his Noble Friend that the national capacity to produce an adequate supply of aircraft and engines in war time is an important aspect of the problem under consideration by the Committee of Imperial Defence. In answer to a supplementary question CAPTAIN GUEST assured VISCOUNT CURZON that the Air Ministry regarded the situation with a feeling of grave alarm and that this had been strongly represented to the Government.

VISCOUNT CURZON then asked a number of questions relating to the Air Estimates, CAPTAIN GUEST pointing out that the replies were contained in the Air Estimates. CAPTAIN GUEST also informed the Noble Lord that there are 1,862 qualified pilots in the R.A.F., 109 observers and 958 non-flying officers. This latter figure is partly made up of ex-warrant officers and other specialist experts who came to the R.A.F. during the war and whom it has been necessary for various reasons to retain temporarily. This number will reduce by about 200 within the next few months and thereafter decrease steadily until it shrinks to a total of 530, the present non-flying establishment. The number of other ranks is 25,887.

The Desert Stronghold.

On July 5th, MR. L'ESTRANGE MALONE asked THE SECRETARY OF STATE FOR AIR whether he would take steps to see that in future air pageants of the R.A.F. bombing displays will not be carried out "against imitation Arab villages or representations of any other townships particularly peculiar to our friendly races"? CAPTAIN GUEST said, "The desert stronghold at Hendon was not intended to represent an Arab village, being, in fact, designed in a style assignable to no particular country or age. A more correct view than that taken by my hon. Friend is expressed in a well-known weekly journal [THE AEROPLANE.—Ed.], where, in describing the village, it is observed that the internationalism of its architectural style suggested Bolshevism in the architect's profession. (Laughter.)

Squadrons (Cost).

On July 6th, MR. E. HARMSWORTH asked THE SECRETARY OF STATE FOR AIR whether his attention had been drawn to Lord Weir's statement that a French Squadron only cost a quarter of what it cost to maintain a British Squadron. CAPTAIN GUEST said that he did not know on what basis the estimate was framed but that he thought that deductions from published figures of air expenditure in two countries must be subjected to so many qualifications as to render the comparison illusory. He pointed out that French personnel are provided by compulsory service and that British Air Estimates include expenditure of a kind which the French meet under Army and Navy Votes. The French Air Service is almost entirely concentrated at home. Further owing to the French mechanic being conscripted it is possible to give less training to skilled personnel than is necessary in the British Service where we have to teach them their trade.

Aircraft Carriers.

Replying to VISCOUNT CURZON on July 6th, THE PARLIAMENTARY SECRETARY TO THE ADMIRALTY said that two aircraft carrier ships are in commission *Argus* and *Pegasus*. The ships under construction or reconstruction are *Hermes*, *Eagle* and *Furious*. *Ark Royal* is in reserve. 17 battleships, 4 battle cruisers and 7 light cruisers are fitted with flying platforms. The number of pilots and observers is adequate for the aircraft actually allocated to the Navy.

Australian Air Services.

On July 6th, replying to MR. ALFRED I. DAVIES, CAPTAIN GUEST said that although he had seen the reports in the Press to the effect that the Commonwealth Minister of Defence had stated that the delay in the manufacture of aeroplanes in England is preventing the start of important inter-State air services in Australia in August and September, he had received no other intimation that such a delay is taking place. He added that there did not appear to be any justification for action by the Air Ministry.

[Apparently Mr. Davies was referring to the Handasyde machines, the production of which has been delayed by the Engineers' strike.—Ed.]

PERSONAL NOTICES.

DEATH.

GILLMORE.—On Friday, July 7th, at Cranwell, Sleaford, in an aeroplane collision, Flight Cadet Vyvian Osborne Gillmore, aged 19, eldest son of the Reverend David Gillmore, late of Highworth, Wilts, and of Allis Gillmore.

Vyvian Gillmore entered Cranwell from St. Bee's School, Cumberland, in January 1921, having won the first Wakefield Scholarship at the examination held the previous November, without special cramming and as the result of his own reading. He headed the entrance list 1,000 marks in front of the next cadet and his marks were high enough to have secured him a good place at Woolwich. As the result of this the Air Council gave the Wakefield Scholarship to the next competitor and awarded Vyvian Gillmore a Prize Cadetship of approximately twice the value of the Wakefield. At the end of his first year at Cranwell he was still first of his term and was regarded by those in authority as not only a brilliant young man but as one who showed unusual promise of being a valuable officer.

Having known him for some five or six years one can say with certainty that in him the Air Force has lost an officer of precisely the type which is most desirable. His understanding and judgment were exceptionally mature for one of his age, and besides considerable scientific and mechanical ability he had a love of history which made him a student of war and would have led to his combining staff work with technical knowledge in just the way which is so much needed in the R.A.F. He was a splendid example of the keen, intelligent, hard-working youngster such as is produced only by British Public Schools. His type made the Old Army what it was and one hoped to see him and his like help to bring the R.A.F. to the same high level. Young as he was Vyvian Gillmore is a very real loss to Service Aviation.—C. G. G.

MARRIAGES.

MACDONALD—BURTON.—On July 7th, Captain Ian Macdonald, A.F.C., eldest son of John Macdonald, of Elgin, to Dorothy Francesca, widow of 2nd Lieut. G. E. E. Burton, and daughter of the late Harold Holden White.

REES—MAUND.—On June 10th, at the Cathedral, Victoria, B.C., Austen Rees, late R.A.F., second son of Mr. and Mrs. Rees, to Olivette, elder daughter of the late Mr. John Oakley Maund and Mrs. Oakley Maund.

BIRTH.

PACKE.—On July 5th, at Frant Cottage, Audley Road, Folkestone, to Claudia (*née* Barclay), wife of E. A. Packe, D.F.C.—a daughter (Celia).

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CONTINENTAL ARRIVALS AND DEPARTURES.

ABBREVIATIONS:—A.D.—Aircraft Disposal Co. B.A. Berkshire Aviation Co. B.C.—Bristol Aeroplane Co. C.A.—Department of Civil Aviation. D.A.—Daimler Airway. D.H.—De Havilland Aircraft Co. G.E.—Compagnie des Grands Express Aeriens. H.P.—Handley Page Transport Ltd. I.L.—Instone Air Line. K.L.—Koninklijke Luchtvaart Maatschappij. L.A.—Leatherhead Aviation Services. M.A.—Messageries Aeriennes. M.W.—Marconi Wireless Telegraph Co. Ltd. P.O.—Privately owned. P.L.—Petters Ltd. S.F.—Surrey Flying Services.

ANALYSIS OF FIGURES.

Number of trips made during week.—I.L. 32, H.P. 12, D.A. 11, M.A 23, G.E. 8, K.L. 17.

Number of passengers carried.—I.L. 64, H.P. 114, D.A. 42, M.A. 28, G.E. 30, K.L. 18

Total number of trips by British machines: 56 carrying 220 passengers.

Total number of trips by foreign machines: 48 carrying 76 passengers.

Trips per day.—Monday July 3rd, 4; Tuesday 4th, 16; Wednesday 5th, 25, Thursday 6th, 2; Friday 7th, 25; Saturday 8th, 25; Sunday 9th, 7.

STATISTICS.

Machines, 104; Passengers, 296; Crews, 156; Total Personnel, 452

Corresponding week last year:—

Machines, 102; Passengers, 331; Crews, 127; Total Personnel, 458

Corresponding week, 1920:—

Machines, 90; Passengers, 138; Crews, 110; Total Personnel, 248

NOTES OF THE WEEK.

On Monday of last week, for the Aircraft Disposal Company, Capt. Stocken was testing the Bristol and the Avro for the Irish Free State to which reference was made last week. He was also giving instruction to a Free State pilot on an Avro. This pilot was an ex-officer of the R.A.F. and had not flown for over three years.

On gathers that the Air Chief Marshal (or whatever his title may be in Irish) of the Irish Free State Air Force is named McSwiney, but one does not know whether he is related to the late Lord Mayor of Cork.

On Friday, Mr. Hayns came in from Dover on the S.E.5a which Mr. Courtney landed in a cornfield on his way back from Brussels. The same day Capt. Stocken was testing another Bristol Fighter.

The outstanding feature connected with the bad weather during the past weeks has been the remarkable regularity of the K.L.M. services. The pilots and the Fokkers combined seem to be able to penetrate any sort of weather and the line is acquiring the reputation of being a highly regular and efficient and certainly the most quietly run service in existence. Moreover, they nearly always carry paying loads, either passengers or goods or both.

Handley Page Transport seldom have a vacant seat on their machines nowadays and occasionally they have to duplicate the service. The W.8 and the W.8bs seem to inspire great confidence in passengers. The Napier W.8 is probably the fastest machine on the service and the take off of a Handley Page machine, whether she has a full load or not, is always a joy to see.

The Instone Air Line are momentarily expecting two Vulcans and the Vimy over from Brooklands and these should be delivered by the time these notes are broadcasted. On Wednesday Lt.-Col. Robert Loraine went to Paris in a D.H.18 with Mr. Robins. He returned on Friday in a W.8b with Major Foot.

The Daimler Airway have got their original D.H.34, G-EBBQ, back again from Stag Lane. They have now proved to most people's satisfaction that it is possible to run a regular twice daily service with only one machine. Having the spare machine on hand will now seem as great a luxury and help as the addition of another dozen machines might be to some lines.

Mr. Robertson made a fine flight from St. Inglevert to Croydon on Thursday in the gale which was disporting itself on that day. He had several passengers on board, all of whom expressed the opinion that they were glad they were in the 34 and not on the Channel steamer which they saw below them having a horrible time in the rough sea with the deck awash.

The gale at Croydon removed the greater portion of the Handley Page sign on the top of their offices in spite of the fact that it was very strongly braced and reinforced.

It is thought the bad weather is caused by a tremendous pitched battle between a fleet of Mr. Hey's isobars and a formation of Mr. Munday's atmospherics under the command of Mr. Fitch. Mr. Hey, however, one is told, is personally in command of his isobars with the honorary title of Depression-Leader. Mr. Fitch will probably be made a Valve-Commander and Mr. Munday hopes to be at least an Aerial-Commodore.

On Wednesday, members of the Meteorological Society paid a visit to the aerodrome and in pouring rain, for which the Society has only itself to blame, they were taken for joy rides in Avros belonging to the Surrey Flying Service by Messrs. Muir and Youell, 76 passengers being carried.

Early that morning Mr. Robinson took a D.H.34 for a longish test flight, passing over the Crystal Palace between 3,000 and 4,000 ft.

On Friday, Messrs. MacIntosh, Carter and other H.P. pilots were flying the Napier W.8 and all were making exceedingly good landings.

Apropos certain remarks about an Aero Club machine being late starting to the R.A.F. Pageant, it is only fair to the Surrey Flying Service, who are responsible for the Club machines, to state that Messrs. Muir and Grant were away at the time and Mr. Jock Anderson was single-handed. Owing to the bad wind, he deemed it inadvisable to bring the machine onto the aerodrome in advance and then when the mist came up he decided that he would not send the machine out without an extra hour's fuel. After all safety first is the best policy, though some people consider it inadvisable when oneself is concerned.

Mr. Keys has now left the Instone Air Line and Mr. Courtney has again been flying the firm's machines after an interval.—G. D.

The De Havilland Aircraft Co.

On Monday, July 3rd, Mr. Wilson, who had been in Dublin since June 28th, doing photographic ferry work for sundry daily newsheets, returned to Stag Lane, the novelty of the Irish war having been superseded by other events of human interest.

On Tuesday, Mr. Broad took Gen. Brancker to Birmingham, Manchester and back to Stag Lane, and Mr. Wilson flew to Torquay and back to get photographs of the Fleet concentration in Tor Bay.

On Friday, Mr. Broad left with Gen. Brancker for Paris and Cologne, and Mr. Wilson flew to Lingfield and back.

On Saturday, Mr. Wilson carried out the usual Saturday afternoon flight to Manchester and back with goods for a firm of publishers.

Throughout the week there have been many test flights on D.H. 34s and D.H.9s, and two pupils have received dual control instruction on D.H.6s and D.H.9s.

The Air Taxi Department of the De Havilland Aircraft Co. Ltd., are running a regular newspaper air service between Lympne and Ostende, carrying London editions of the *Times* and the *Daily Mail*. The service began on Monday, July 3rd, and the papers are on sale in Ostende at 07.30 o'clock before the French and Belgian papers. Mr. C. D. Barnard is pilot and he is using a D.H.9c.

At present the machine returns empty, but Mr. Barnard is open to carry passengers from Ostende to Lympne. The machine, a three-seater, leaves Ostende at 11.00 o'clock or at times convenient to passengers, and the single fare to Folkestone, including motor transport from Lympne, is £3.

Prospective passengers are asked to leave word at the Hotel Continental, Ostende, stating times they would like to leave Ostende, when arrangements will be made for their conveyance at Lympne.

Plymouth.

The Berkshire Aviation Co. have extended their stay in Plymouth another week.

Despite the inclement weather quite a lot of flying has been done—people coming up to fly in rain and mist.

Several cross-country flights have been made to Tavistock, Ivybridge, Paignton, and Dartmouth.

Considerable trouble was caused on Sunday through water getting into the petrol tank. It took some hours to rectify this.

THE AERIAL DERBY OF 1922.

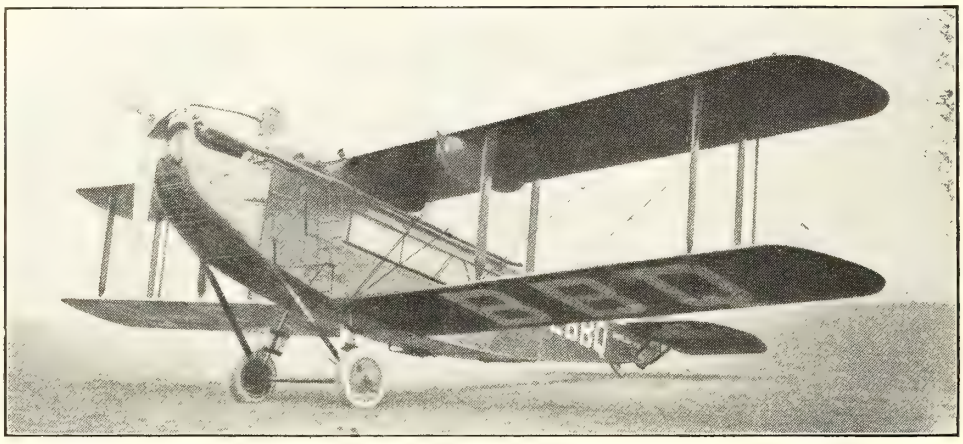
The Royal Aero Club has decided ultimately to hold the Aerial Derby of 1922 at Waddon Aerodrome, Croydon. In order not to discommode the important operations of Civil Aviation the Club had decided to hold the race at Hendon, but when it came to negotiating for the hire of the Hendon Aerodrome it was discovered that the demands of the Grahame-White Company were higher than the Committee of the Royal Aero Club thought it reasonable or advisable to pay. Consequently the race will start from the finish at the London Terminal Aerodrome at Croydon on Monday, August 7th, being August Bank Holiday.

The First Prize for the Aerial Derby is a Trophy and £300, the First Prize in the Handicap is a Trophy and £150, the Second Prize £75 and the Third Prize £50.

Judging from conversations one has had it would appear that the Civil Aviation Authorities at Croydon, having seen something of the Royal Aero Club's organisation for a race day, are not merely reconciled to the Aerial Derby being held there, but are actually looking forward to the event with pleasure. There is moreover the quite important point that the machines only start from the aerodrome, pass over it and finish at it; they are not continually flying round and round it as in the case of an ordinary race meeting.

The D.H. Type 34

(11 Seater)



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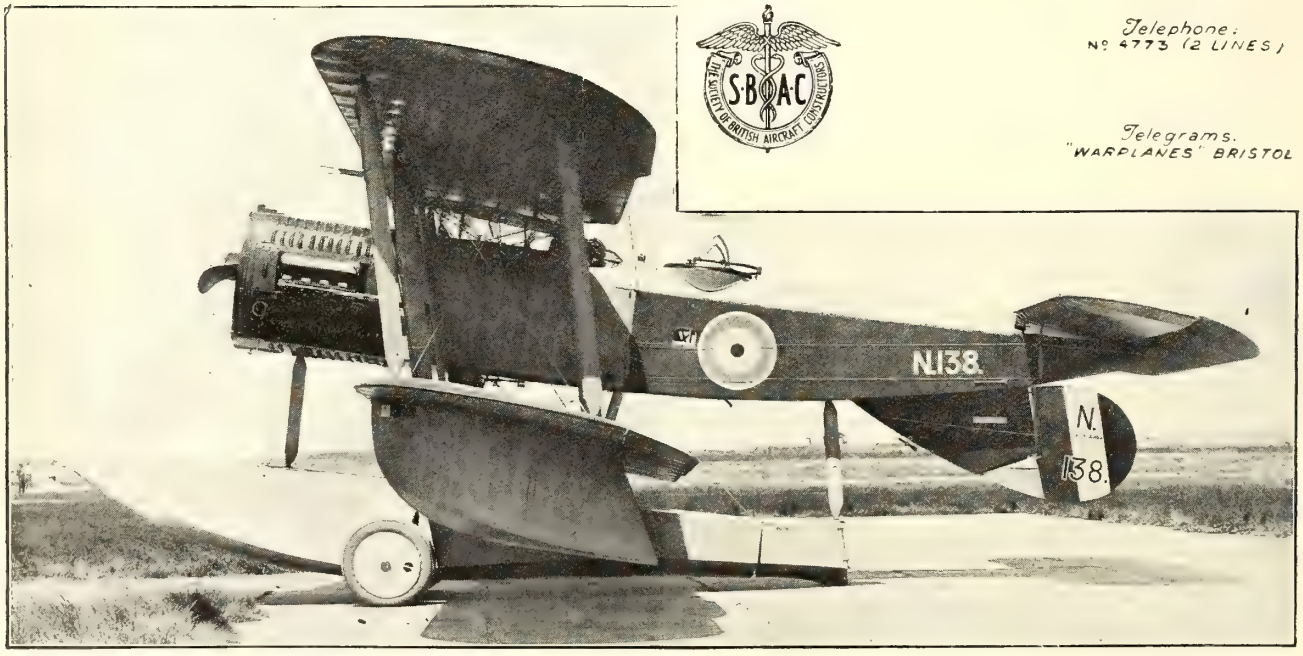
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The course for the Derby will be over the old Aerial Derby course, cutting out Hendon and Epsom. That is to say, the turning points will be at West Thurrock, Epping, Hertford and Brooklands.

One would like to suggest to the Club that the race this year should be flown right hand in, or clockwise. That is to say, on starting from Croydon the first turning point should be Brooklands, so that at the end of the first lap and at the finish the machines would come in from West Thurrock facing the crowd. It would obviously be absurd for the machines to finish from Brooklands to Croydon, for in that case the crowd would have to turn round with their backs to the aerodrome and look for the machines coming towards them out of the sun—if any.

Entries close on Wednesday, July 26th, with an entrance fee of £10. Late entries will be received up till midday on Monday, July 31st, with a special entry fee of £15. It is to be hoped that some foreign machines at any rate will compete.

One notes that the prize this year is £300. Last year it was £400, and the year before £500. At this rate in 1926 the winner will owe the Royal Aero Club £100 and competitors will have to insure against winning. Still the advertisement of winning will be worth the money.

In order to entertain the crowd during the unavoidable intervals at the Aerial Derby, it is generally agreed that there must be a properly organised exhibition of stunt flying.

One wonders whether it would be possible for the Royal Air Force to do an item or so from the Pageant which was spoilt by the rain. It is generally agreed that one of the most spectacular and at the same time instructive shows billed for pageant was the attack on the "Vimys" by the "Snipe" and the final sight of a "Snipe" falling out of control. Also one is told that one pilot's crazy flying on a "Snipe" is as good as, if not better than, anything hitherto seen in public.

Perhaps if the Royal Aero Club were to approach the Air Ministry on the subject the latter might be willing to allow the appearance of these machines and perhaps also the remarkable D.H.10. feat which was seen at the Pageant. At the present time only good can result in acquainting the public of the work of the R.A.F. and it would undoubtedly add enormously to the attraction of the Aerial Derby

Some of the machines for the Derby seem to be most interesting. In particular the new Bristol which will probably be flown by Mr. Uwins. This machine, one believes, is a monoplane with a Bristol "Jupiter" engine which has been boosted up to 500 h.p. The machine also has a retractable undercarriage and one is told that the speed expected is in the neighbourhood of 240 m.p.h.

The Gloucestershire Aircraft Company are entering last year's winner, the "Bamel." She is being fitted with smaller wings and has generally been "cleaned up." Furthermore Mr. "Jimmy" James knows the machine inside out, whereas the Bristol at the most will have a fortnight for tests. And the Napier people can be relied on to see that there is no trouble with this well-tried engine. The Gloucestershire Aircraft Company will also enter a "Sprawk," which Mr. L. R. Tait-Cox will fly.

Mr. F. T. Courtney hopes to have a Siddeley "Siskin" ready in time, and De Havillands will have the D.H.37 for Mr. Butler going by then. The Aircraft Disposal Company are sure to enter a "field" and several French entries are expected.—G. D.

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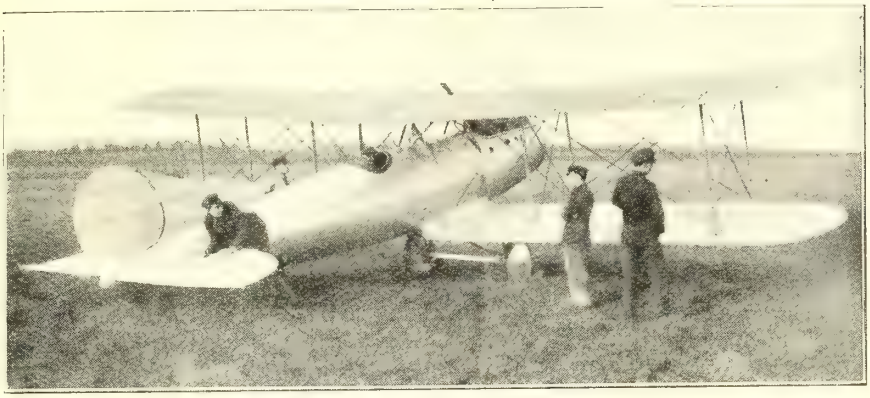
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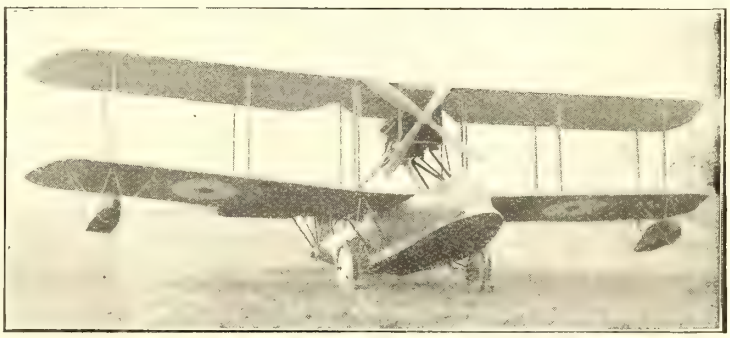
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ON THE NAVY AND THE R.A.F. AND THE PRESS AGAIN.

There is at any rate one thing to be said in favour of the Navy, it possesses to the highest degree that invincible obstinacy amounting to stupidity which makes the true Englishman the most undefeatable ass on Earth. That quality has enabled the Navy to win battles against foreign foes when seamen of any other nation would have been beaten to a frazzle—to borrow the expressive Americanism. Unfortunately for the Navy its latest campaign, that against the Air Force, has brought it up against people who are just as obstinate as itself and happen to have considerably more brains.

When after the first phase of this campaign Mr. Chamberlain announced officially in the House of Commons that in future the R.A.F. would be the First Line of Defence and that the Air Force would remain definitely a separate Service, the Navy was beaten into a corner and one hoped that one had seen the last of its intrigues. But apparently the R.A.F. is not to be allowed to remain in peace at home while it conducts its various wars abroad. The Navy, it seems, having no war on hand at the moment and having made rather a poor show in the war against Germany—in which it signally failed to protect our Mercantile Marine and our troop-ships—has resolved to launch another attack on the Air Force which, owing to its various wars in India, Iraq, Arabia and Africa, is thus compelled to fight the Navy more or less with one hand tied behind its back. Obviously while the brains of the Air Council are busy conducting operations and arranging supplies for the squadrons overseas they cannot devote as much time to intrigues at home as can the people at the Admiralty who have nothing better to do except exercise the species of low cunning displayed in Parliamentary answers.

Some weeks ago one had the pleasure of meeting a distinguished Admiral, one who is genuinely distinguished in that he actually did something in the War to deserve his promotion. He paid this paper the compliment of saying that he had only read it once and that then it contained the most poisonous article on the Navy that he had ever read. One admitted bashfully that the article was intended to be poisonous, in the hopes that it might do good to the Navy and shake it up a bit. You see the best antidote to one poison is frequently another. But when it comes to disseminating poisonous propaganda one retires into the background and merely regards with amazement the anti-Air Force propaganda with which Parliament and the Press has been flooded during the past week or so either by the Admiralty itself or by the friends of the Navy. Happily it is remarkable rather for quantity than for quality and most of it is merely poisonous nonsense.

The Spoilt Child.

Nevertheless, the Navy is still the spoilt child of the British Public, for the Englishman with his invincible stupidity has not even now realised that the Navy is no longer his First Line of Defence. He has not even realised how badly the Navy let him down during the War and how nearly it brought him to starvation. Consequently it is well for us to regard all this poisonous nonsense seriously, for it is always possible that the free and independent voter may be persuaded that the Navy is capable of handling the air defence of this country. And as Messrs. Lloyd George and Company are more concerned about votes than anything else there is always the consequent possibility that in order to capture the Navy's vote they might hand over our Home Defence and sea-going aircraft to the Navy. It would not be the first time that our Government has gone back on its fixed decisions through fear of the ballot-box.

Sometimes one thinks that it is rather a pity not to do so, just for the fun of seeing the Navy make the same utter hash of Naval Aviation as it did during the War, and for the sake of getting rid of a lot of pro-Navy people in the R.A.F. who are a clog upon efficiency, a wet blanket on *esprit de corps* and a hamper on good discipline. But the issues at stake are too great and so the only thing for any right-minded person to do is to insist on maintaining The Royal Air Force, One and Indivisible.

A Muddled Attack.

The Navy's mode of attack is as thoroughly muddle-headed as was the Admiralty's strategy in the War. We find one section of the Navy's supporters in Parliament and the Press pouring scorn on the Air Force and jeering at the idea that aircraft can sink battleships or protect our coasts or guard our Mercantile Marine (and this although one kite-balloon was proved in the War to be a better escort for a convoy than were half-a-dozen destroyers). And on the other hand we have the other section on the verge of hysterics because the Navy is not allowed to have complete control of that despicable weapon the aeroplane.

The explanation of this diversity of opinion is very probably that the former section does not know what aircraft can do and the latter section knows too well not only what aircraft can do for the Navy, but what they can do to it.

The former talk scornfully of the sinking of the *Ostfriesland* by the U.S. Army Air Service under General Mitchell after the U.S. Naval Air Service had failed. They say that his 2,000 lb. bombs were dropped on defenceless ships lying at anchor. But they entirely neglect to reckon that if the ships were defended and steaming it would merely mean that a few more aeroplanes would be needed for the job. And it seems that they do not know or wilfully conceal what the R.A.F. has done.

The Experience of the "Agamemnon."

As to the latter section, they know and are scared stiff in consequence. Several years ago the R.A.F. demonstrated to the Fleet at Portland what a few torpedo aeroplanes and a little smoke-screen could do to a fleet at anchor. But the Navy argued that under steam their ships could not be touched. So the R.A.F. arranged with the Navy a little demonstration.

H.M.S. Agamemnon was sent out as a target steaming at 10 knots. First of all a machine gun attack was made on her, just to show how to clear the decks of anti-aircraft gunners and so forth. A gallant Lieutenant R.N. refused to go below and stayed proudly in the conning tower, secure behind his little steel Venetian blind. A wicked "Snipe" pilot instead of diving down and firing against the flat of the steel slats zoomed up at the edge of them, and the poor Lieutenant had the unpleasant experience of hearing bullets which had come in between the slats chasing one another round the inside of the conning tower as they cannoned off the steel walls.

Then an R.A.F. bomber went up and dropped three small dummy bombs onto the ship from 8,000 feet while she was zig-zagging at 10 knots. Two of these bombs went down her funnels and the third jammed in the funnel-casing. It is said that a fourth went through the deck-plating into the ward-room where the ship's officers were discussing in their usual lofty way the preposterous claims of the R.A.F. But one will not vouch for this part of the story.

The fact remains that after this demonstration and one or two others with torpedoes the less unintelligent Naval Officer is now convinced that either the Navy must capture all aircraft which can be used for or against a Fleet at sea or else that the Navy must take a back seat and become eventually merely a transport service for the R.A.F. Those Naval Officers who possess a positive intelligence even admit that conceivably the Capital Ship of the future may be a high-speed aircraft carrier, and not a heavily armoured big-gun battleship.

The Capital Ship Problem.

As to the Capital Ship of to-day one confesses to being frankly puzzled about the advisability of spending money on it. In its latest form, the *Hood* class, it depends for safety largely on its speed, and it is said that it would take ten torpedoes to sink it. Naturally a destroyer flotilla would stand a poor chance of getting in those ten torpedoes. But twenty aeroplanes could be bought for the price of one destroyer and of those twenty it is probable that ten would

get their torpedoes home into the *Hood*. And only twenty men would be risking their lives in doing it, instead of the whole crew of even a single destroyer.

Moreover the *Hood's* speed would be of little use against aeroplanes. In fact it would be an advantage to the aircraft in that it would reduce the difference between the speed of the aeroplane and its target. Also one doubts whether the deck armour of a *Hood* would stand up to a 1,000 lb. armour-piercing bomb dropped from 8,000 feet or so.

The Floating Fort.

On general principles one hates to find oneself on the same side as Sir Percy Scott, but one cannot help feeling that he is right about the uselessness of Capital Ships. Take an analogy from land war.

The Capital Ship is in essence a floating fort. Until September 1914 everybody—except the German artillerymen and the more enlightened of our own Gunners—regarded the fortresses in Belgium and Northern France as impregnable to gun fire, with their concrete and armour-plated casemates. Yet Liège did not hold out for twelve hours after the German heavy guns opened on the forts, and the rest of the great fortresses never even waited for the heavy guns to begin on them.

To have talked about the uselessness of fortresses in July 1914 would have sounded just as silly as to talk about the uselessness of Capital Ships to-day, or even sillier, because to-day nobody except the Navy is quite as cocksure about things as everybody was then. The Falkland Islands and Jutland showed that neither speed nor armour are quite all they were cracked up to be, and so it is quite probable that the next sea war may show that floating forts are as useless as land forts and that at sea as on land we are coming back more and more to the elemental form of war in which man-to-man fighting is what counts for most.

All of which helps to account for the thoroughly scared state of the Navies of the World, and the intense desire of our Navy to re-capture its Naval Air Service. Admittedly the Navy has quite good arguments on its side, but the unfortunate fact remains that the Naval mind in general and the Admiralty mind in particular is not to be trusted with the development of aircraft. The Senior Officer would still think in terms of Capital Ships and Fleet Actions and so forth, and the development of Naval aircraft would proceed along the lines of their usefulness as auxiliaries to the Fleet. And thus seagoing aeroplanes could never reach their full development as independent weapons capable of abolishing an enemy fleet and of working on their own account with or without stereotyped warships to back them.

The Food Fallacy.

The leaders of the Navy's attack on the Air Ministry appear to be Lord Lee of Fareham, First Lord of the Admiralty, and the Marquess of Linlithgow. Neither of these noble lords has ever shown any interest in aircraft in the past so their opinions cannot be worth much in the present. But their rank and station is bound to carry weight with the uninitiated. Therefore it seems well to expose the futility of their arguments.

Lord Lee said on July 6th that the Navy must have control over its Air Service. As a matter of fact it has got it, for in action the R.A.F. with the Fleet is under the command of the Admiral Commanding. Then, to scare the populace, he said that food could only come safely overseas during war under the guardianship of the British Navy.

The answer to that is simply that in the last war our food did not come safely under the guardianship of the Navy. Our coasts to-day are littered with the wrecks of food ships which the Navy failed to protect. The Navy even prevented food ships from entering its ports for protection and left them out in the open to be torpedoed.

In every possible way the Navy proved itself incompetent to protect our shipping. Still worse, it endangered our merchant ships by turning them into illicit war transports. Ship after ship crossed the seas with its holds full of high explosives and with women and children in the cabins above. And our foolish people cursed the Germans for sinking them.

Yet as soon as the despised R.N.A.S. managed in spite of opposition to take on escort work the ships with air escorts got through untouched and even without being attacked. At one period the R.N.A.S. ran the convoys from Marseilles to Port Said, handing over from patrol to patrol of seaplanes, and never lost a ship. During that period the destroyer escorts from Gibraltar to Port Said never got a convoy through without losing at least one ship. And after the R.A.F. started the coast patrols in 1918 we hardly ever lost a ship in home waters.

Therefore, if we have to depend on sea-borne food in the next war, in Heaven's name let us leave the guardianship to the Royal Air Force and not to our provedly incompetent Navy.

Lord Linlithgow's remarks on July 12th were even more puerile than Lord Lee's. He argued that food and troops must be carried by air before we could do without command of the sea. Which is perfectly true but for the fact that as the late War proved aircraft can command the sea better than any fleet can do it.

We need police to regulate our road traffic and to see that thieves do not steal from our road vehicles. But we do not argue that the police should belong to the London General Omnibus Company or to Messrs. Carter Paterson and Co., or that they should be mounted on motor lorries or even on armoured cars, which would be just as reasonable as the argument of these noble lords that our sea police must belong to the sea-borne Navy.

An Admiralty Dodge.

In the House of Commons, Viscount Curzon, a good honest R.N.V.R. mariner who means thoroughly well, seems to lead the attack. Not being a Government official as is Lord Lee he is able to attack the Air Ministry direct. His intentions are so good that it is a pity he is not better informed. If he knew more about his subject one feels sure that he would become an ardent supporter of the Air Ministry and would concentrate his attacks on the Government.

On July 12th he asked the Admiralty how many aeroplanes, pilots, and observers are now available for working with the Navy. Mr. Amery, naturally more concerned with making a case for the Navy than giving accurate information, said that there were 18 reconnaisance machines, 6 fighters, 12 torpedo machines and 18 spotting machines. It is no doubt literally true that those are all the machines at present on Naval ships, and one doubts whether the Navy could accommodate any more if it got them. But the figures do not by any means represent all the machines *available* for the Navy. Consequently Mr. Amery's answer is deliberately deceptive.

There are in fact several hundreds of fighting machines in store at Leuchars, there are dozens of seaplanes and flying boats in store at Flexistowe, there must be another hundred or two at Calshot, Cattewater, and Lee-on-Solent. In fact there are far more aeroplanes of one sort or another "available for working with the Navy" than the Navy could possibly use even if it had the intelligence to know how to use them.

Moreover there are actually in use to-day in or about 400 assorted float-seaplanes, flying-boats, deck-fliers, fighters and so forth, all ready to co-operate with the Navy if the Navy were willing to work with them. The R.A.F. is preparing for sea war in spite of lack of support from the Navy.

The Reason for Delay.

That does not in the least mean that the Coastal Area, R.A.F., is properly equipped. Far from it, for the sea-going machines are just as much old war-time junk as are the land machines. But it would be idiotic even if we had money to burn if we ordered vast quantities of seaplanes or amphibians, for as in the case of land machines our sea-going aircraft are in process of development.

The R.A.F. station at Gosport exists for the purpose of developing aeroplanes for co-operation with the Fleet. All the machines in its possession and in *H.M.S. Argus* lying in the Solent, and other Naval machines elsewhere, such as the "Walrus," the "Dart," the "Pintail," the "Seal" and so forth, though far ahead of corresponding types in any other Navy, are admittedly experimental and it would be lunacy to order them in quantities even if the Navy had anywhere to put them, which it has not.

At the same time if the Air Ministry had money to spare it would undoubtedly order more of these machines so that experimental and test flying could be pushed along more rapidly. If this were possible we should arrive sooner at types of machines which could be standardised.

In an interview with a man from the *Evening Standard* Viscount Curzon is represented as saying: "Our aerial position to-day is hopeless and there is an immediate need for a thorough and drastic reconstruction of the Air Ministry from top to bottom," and he continued: "The total defensive force of the Fleet scattered over the whole world is six fighting machines—if they are still intact! Experimental work is at a standstill."

All that merely shows that Lord Curzon does not know what he is talking about. The Air Ministry has spent every available penny on experimental work with Naval machines, and far more work of this nature is going on to-day than there ever was in the days when the Admiralty was mishandling the R.N.A.S. The Air Ministry is in fact pushing on Naval aircraft experiments to the detriment of pure Air Force work.

Lord Curzon's remark about the six fighting machines is simply childish. Even he ought to know better than to think that "the Fleet scattered over the whole World" could carry fighting machines with it, or would do so if it could. Does he seriously expect light cruisers and gunboats to carry aeroplanes up the Chinese and African rivers

and into the other odd corners which they penetrate? One agrees that flights by British aeroplanes in these odd corners would be the best possible way of "showing the Flag"—which trade always follows—but the Navy does not love aircraft enough to do it. Really Lord Curzon ought to study his subject before he starts attacking the Air Ministry.

He and his like would especially do well to remember that the whole Air Force Vote, including Civil Aviation, barely covers the cost of building and equipping one single Capital Ship. And yet they expect the Air Ministry to build up a great Air Force and supply the Navy and Army out of the price of a battleship and a bit.

Common Sense.

As to the Press attacks, they are only what might be expected. The only regular writer in the Press to-day who knows anything about Service Aviation is Major C. C. Turner. In the *Observer* and the *Telegraph* he puts the Air Ministry's case strongly and ably.

In the latter paper on July 10th he said: "Of the money spent on new types of aeroplanes the greater portion has been devoted to new naval aircraft. A great deal of effective co-operation between the Navy and aircraft is reported and the work of Air Commodore Samson in the Mediterranean is especially to be remarked in this connection. The statement that the Air Ministry have neglected the amphibious type is not in accordance with the facts. The present writer during the past few days has seen a new and advanced type of amphibian building for the Air Ministry. He has also seen very important all-metal aeroplane construction in progress for the Air Ministry; and in this connection it may be stated that British design is more advanced than it is believed to be in some quarters. It may be stated with confidence that British aeroplane design has nothing to fear from comparison with either German or French." There you have a perfectly fair and accurate statement of fact.

Another excellent statement is that of Mr. H. T. Vane, of the Napier Co., in an interview in the *Evening Standard* in which he says: "If aero works close down and the staffs are dispersed we shall find ourselves in a position comparable with that which obtained when we set out during the war to catch up to the Germans. I do not blame the Air Ministry, because they are handicapped by lack of money, but it is essential that they should have more funds from somewhere. Their lack of money is proving an extraordinary deterrent to development." Which puts the whole matter in a nut-shell.

The Harmsworth Attack.

A somewhat puzzling feature of the campaign is the attitude of the Harmsworth Press. Until last week the *Daily Mail* was doing quite useful work in impressing on the Public the need for a bigger Air Force. Of course it made the sort of silly mistake which one expects from non-technical journalists and talked about a 60 h.p. German machine which was impossibly better than our 300 h.p. single-seat fighters, but on the whole it was fairly sensible. Then on July 13th it suddenly burst into flames with a purely idiotic attack on the Air Ministry.

First of all it fastened on the phrase "only six fighting aeroplanes owned by the British Navy," ignoring the fact that actually the British Navy does not "own" an aeroplane of any kind. Then it attacked Capt. Guest's encouraging statement that "The foundations of the Air Force have been well and truly laid"—a statement which is true in every way. And then it was seized with the brilliant idea of hunting out the Air Force List and discovering how many officers there are in the R.A.F. There it found 200 Squadron Leaders and only 31½ squadrons, which inspired the delightfully foolish sentence—"What the 200 Squadron Leaders do with only 31½ squadrons to lead is one of the great mysteries of to-day."

The Bliss of Ignorance.

The ignoramus who wrote the article evidently had not the intelligence to understand that behind the 31½ squadrons are all the great flying training and experimental establishments, the Navy and Army Co-operation stations, the operations and equipment and technical Staffs at the Air Ministry, the Cadet College, the Staff College, the technical training schools for men and boy mechanics, the stores and packing depots, and so forth, all forming the foundations which are absolutely necessary for the big Air Force which we hope to have a few years hence, and could have at once in case of war.

Also he evidently did not understand that "Squadron Leader" is a rank-title corresponding to Lieut.-Commander R.N., and Major in the Army, and does not imply that the holder is ever likely or even able to lead a squadron. The rank includes doctors, dentists, engineers, technical people and sundry others who are not called upon to fly on active service.

In a leading article on the same day the *Mail* makes the great discovery that there are over 2,000 officers in the R.A.F. and only 378 machines on the establishment and that the "Air Department is maintaining an average of 6 officers per effective machine," adding "What is the use of a host of officers who would not be able to fly in war because they would not have machines?" Naturally one does not expect a leader-writer to have any more information than the writer of a special article so it is not surprising to find such foolishness in the leader. But for the benefit of the unmitiated it may be well to explain that the 378 machines on the establishment bear no relation to the thousands of machines in store which are not allocated to squadrons, and that the total 2,000 officers, as explained above, give no indication of the number of flying officers.

The real mystery is the origin of the number 378 for there are actually more sea-going machines than that in use, and besides them there are the land-going aeroplanes.

Our Real Air Power.

What the *Mail* either does not know or wilfully conceals is that the R.A.F. includes among its 2,000 officers on the active list enough past and present squadron leaders, wing-commanders and so forth to command and administer a force of at least 200 squadrons if we called up our reserve of demobilised flying officers in case of war. And the *Mail* does not make known that we have enough machines in store and among our disposal stock to equip those squadrons with aeroplanes which although out of date according to modern ideas are quite good enough to make hay of any other air force in the world and probably capable of taking on all the rest of the world put together.

So far as Air Power at the moment is concerned we are safe enough. But we have to look forward to the future and that is precisely what the Air Ministry is doing. Moreover it is preparing for the future in the best possible way.

The Foundations of the Air Force.

Instead of wasting money on buying quantities of machines, which would in any case be obsolescent by the time they were delivered, the Air Ministry is, as Capt Guest said, laying the foundations of a great Air Force. It is buying experimental aeroplanes and it hopes to buy them soon in greater numbers. But first of all it is getting hold of the best possible men to handle its new machines.

At the end of the War most of the skilled mechanics of the R.A.F. went back to their own civilian jobs. Such of them as were left were needed for active service in India, Iraq, Palestine, Africa and elsewhere, and for the experimental establishments. There were not enough left for home squadrons and flying training stations. And that is why so little flying has been done.

Now we have the great technical training station for boys at Halton, a marvel of economy and efficiency, and the similar station for newly enlisted men at Manton. The Navy and the Army have proved that if the best class of men are to be got they must be decently housed. Consequently the big new barracks and workshops are the first necessity of all. From Halton, and temporarily from Cranwell, youngsters of an extraordinarily high class are beginning to pass into the R.A.F.: and from Manston, and temporarily from the men's wing at Halton, young men are also passing into the R.A.F. squadrons.

These men have to be physically fit to go anywhere and do anything in any climate. They have to be taught to move as disciplined troops and not as a mob. And they have to know how to defend themselves against attack on the ground. Consequently they need not only technical instruction but physical training and drill instruction, with the necessary accommodation.

All this is absolutely necessary and it all costs money. Without men so trained no squadron could exist on active service and even at home it would be inefficient and its machines would probably be dangerous to fly. It is on these foundations that the R.A.F. is built and on which it must always rest.

Besides these schools for men there are all the specialist schools for officers. There are bombing, photography, machine-gun, engineering and other special courses, besides the Staff College, all of which are necessities in a Service which consists mainly of specialists.

The mere buying and flying of aeroplanes, though primarily the reason for which the R.A.F. exists, is in fact a very minor part of its cost and of its activities. It is just this which the ordinary journalist and his readers do not or cannot understand. They seem to think that the Air Ministry only has to buy aeroplanes and keep officers to fly them.

They are hopelessly ignorant of the fact that even in War it takes about 50 people on the ground to keep one aeroplane in the air and they cannot be expected to know that in time of peace that figure must be vastly higher because of the number of people teaching and learning subjects which do

not involve flying, though absolutely necessary to those who fly in time of war.

The Apex of Folly.

It is curious that the *Daily Mail's* outburst should have come just after a silly but none the less vicious attack on the Air Ministry in the *Daily Mirror* on July 10th. This journal can hardly claim to be in the front rank of political publications, despite the popularity of "Pip, Squeak and Wilfred," but it is read by some millions of people and consequently its influence cannot be neglected.

It will be recalled that its proprietor is Lord Rothermere who for a brief period was Air Minister in this country. It will also be recalled that Lord Rothermere resigned suddenly after an uproar caused by the resignation of Sir Hugh Trenchard who found it impossible to work on the lines favoured by Lord Rothermere.

His paper now attacks the Air Ministry thus: "Money is being spent wholesale in an entirely wrong direction. The present methods are antiquated and futile. Younger men are wanted in the work of administration—men with ideas. An Air Force controlled by middle-aged military men with military training is useless and expensive. The immediate need is not more waste on unnecessary machines, but younger officers with imagination and ideas," and much more to the same effect.

That same fondness for young men, whose ideas as a rule were worthless and whose imaginations frequently produced a wholesale neglect of truth, came very near wrecking the Air Force during Lord Rothermere's brief but regrettable term of office. If Lord Rothermere did not himself write the passages quoted they do at any rate reflect the lamentable policy which he pursued when at the "Hotel Bolo," as it was commonly called.

The Inexperience of Youth.

As a matter of fact one of the chief weaknesses of the Air Ministry is that the people at the top are so young that they are at a disadvantage when competing with senior officers and officials of the Admiralty and War Office. There can hardly be anyone in the Air Ministry over 50 years of age, and the whole history of War teaches us that with perhaps half a dozen exceptions no man is fit for a big command till he is over 60 and that a very high proportion of the greatest generals have been over 70.

As Mr. Bernard Shaw demonstrates in his latest book the majority of men die before they have lived long enough to acquire either experience or knowledge and that a man who dies at 70 is only just beginning to have a little sense. Which is perfectly true and accounts for the fact that humanity has not developed at all within the period covered by history.

The recent war on the Continent and the present war in Ireland prove that only in mechanical things are we in any way ahead of Abraham, Nimrod, Rameses, Alexander, or any of the Cæsars. The idea that mere boys could do better with the Air Force than can the fairly experienced and undoubtedly clever middle-aged men now in control is just what one might expect from Lord Rothermere after the R.A.F.'s earlier experience of him.

But the curious thing is that the *Times* and the *Daily Mail* should follow the lead of the *Daily Mirror* in attacking the Air Ministry. It is known that at the present time Lord Northcliffe is not competent to look after his newspapers, and this sudden change in their attitude suggests irresistibly that Lord Rothermere is already stepping into his brother's shoes. An attack on Air Ministry policy to-day is in effect an attack on Sir Hugh Trenchard, for the Air Council is very wisely following his policy. And such an attack by Lord Rothermere would be perfectly natural.

Back the Air Ministry.

Whether that be so or not matters very little, even though a knowledge of the facts might explain much. What does matter is that the Air Ministry's policy, inspired by Sir Hugh Trenchard, is perfectly sound. The R.A.F. knows its Chief of old. He has pulled it through tighter places than this and he will do so again, despite the yapping of the Press and the intrigues of the Navy.

In his delightfully scandalous book on the War Colonel Repington relates how on one occasion, when the French Service d'Aviation was going through its usual periodic crisis, re asked General de Castelnau what it was all about this "*crise d'aviation*," and the wise old general replied "So long as there is *aviation* so long will there be a *crise*."

That is about the position here. The Chief of the Air Staff will pull the R.A.F. through this latest *crise*. But it it seems just as well that people in the R.A.F. and in the Aircraft Industry should be led to think a little more about the various things which may be behind the *crise* than they would in the ordinary way. Hence the inordinate length of this article.—C. G. G.

THE KING'S CUP.

It is now generally known that His Majesty The King has graciously been pleased to present a gold cup for a race of 1,000 miles round Great Britain, which will begin and end at Croydon Aerodrome, on either 8th and 9th or 9th and 10th of September.

It will be open to all types of machines and will be in the nature of a handicap.

One gathers that a large field may be expected to start. The Duke of Sutherland is having a D.H.9 erected for him by the Surrey Flying Services, which will be flown by Mr. Muir. The Daimler Airway have expressed their intention of entering a D.H.34, and Handley Page Transport hope to enter a W.8 or a W.8b

It is hoped that further details will be available next week.

CAPTAIN MACMILLAN'S PROGRESS.

Captain Norman Macmillan, late R.F.C., who left England on May 22nd, accompanied by two passengers and was delayed for some weeks at Marseilles, started thence on a new D.H.9 with a Siddeley "Puma" engine, after changing one of his passengers for another, made good progress to Athens.

Since then his progress has been remarkably good, comparing quite well with that of the late Sir Ross and Sir Keith Smith on the same journey and of that of Messrs. Parer and McIntosh.

Leaving Athens on July 6th, he reached Sollum on the Egyptian coast and landed at the R.A.F. aerodrome at Aboukir on July 7th. He stayed there till July 10th, and still with two passengers he left for El Aziz. Evidently there was some little delay there or at Amman, presumably for the arrangement of R.A.F. escorts.

Flying from West to East it is possible for a D.H.9a to do the complete journey from Amman, the capital of Trans-Jordania, to Baghdad without a stop, but so far as one can discover it has never been done from Baghdad to Amman, consequently an ordinary D.H.9 with a "Puma" engine and loaded with two passengers as well as the pilot can scarcely be expected to do the non-stop journey even from West to East. It may therefore be assumed that Captain Macmillan was obliged to land on the way and fill up with petrol as do most of the R.A.F. machines.

He arrived at Baghdad on July 12th, at about 16.00 hours. His stay in Baghdad was evidently short as he arrived in Basrah on the night of July 15th.

So far Captain Macmillan's journey has followed a fairly well-beaten track. Several Service machines have flown from England to Iraq, and it is of interest to note the achievements of non-Service flights over this route.

The first machine, other than R.A.F. machines, to get across to the Persian Gulf was the Caudron piloted by M. Poulet who crashed at Rangoon. Then came Messrs. Ross and Keith Smith on their Vimy (Rolls-Royce engines), who reached Australia. After them came Mr. Matthews, who crashed on the Eastern shore of the Persian Gulf. Then came Messrs. Parer and McIntosh on a machine similar to that used by Captain Macmillan, but carrying one passenger instead of two. They also reached Australia. Then came the Italians Ferrarin and Massiero, each on a single-seater Ansaldo. They reached Tokyo; a very remarkable performance indeed.

It reflects great credit on Captain Macmillan's piloting and his handling of his engine that he should have done so well carrying such a load of passengers and cameras and so forth. One hopes that his skill and experience will prevent any untoward ending to his journey.

A REVOLUTION IN AERO ENGINES?

It is an open secret in the Aircraft World that the firm of William Beardmore Ltd. have almost completed a semi-Diesel aero engine, which is to develop about 700 h.p.

It will burn crude oil and if successful it will be a very great forward step in both military and civil aviation.

THE RESULT.

A Pioneer of Aviation writes:—"I am very busy reading the newspapers these days and dreaming of the terrible days when the German will stink us all out of existence. The only escape would probably be to hire specially designed machines fitted with engines operating inside gas masks (unless someone invents carburetters mixing up successfully stink, cholera and spotted-fever germs with petrol) and fly off to Mars as soon as Mr. Marconi gets the broadcast message that peace reigns there.

"I am off to The Hague next week; if I have time I will go round the Palace of Peace, the iron gates of which were a present of the Kaiser; apparently he wanted to make sure that peace would be safe there under lock and key."

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ENGLAND TO AUSTRALIA —11,500 miles.

ENGLAND TO SOUTH AFRICA—6,281 miles.

ENGLAND TO SWEDEN *(and back)*—2,450 miles.

ACROSS THE SOUTH ATLANTIC—3,822 miles.

ENGLAND TO CONSTANTINOPLE—2,160 miles.

ENGLAND TO FINLAND—1,100 miles.

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"The first **International Air Reliability Trial** ever held has just been completed at Brussels, and has been **won by a Handley-Page** machine fitted with two **Rolls-Royce engines** The machine scored 100 per cent. marks for take off, speed, climb and weight carrying."
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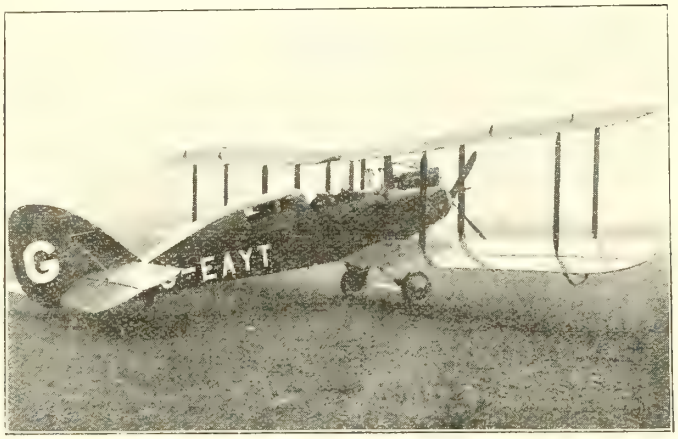
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COMMERCIAL TYPE AIRCRAFT.

The DH.9c.



Engine—230 h.p. Siddeley "Puma."

Useful Load—3 passengers with luggage or 6 cwt. of freight.

Cruising Speed—85-90 m.p.h.

Range—500 miles.

The low operating cost of the D.H.9c is demonstrated by the fact that these machines are run on the De Havilland Aeroplane Hire Service at an inclusive fare of 2*s*. per machine mile (8*d*. per passenger mile or 4*d*. per cwt. mile).

Immediate Delivery.

The DH.16.

Engine—360 h.p. Rolls-Royce "Eagle 9."

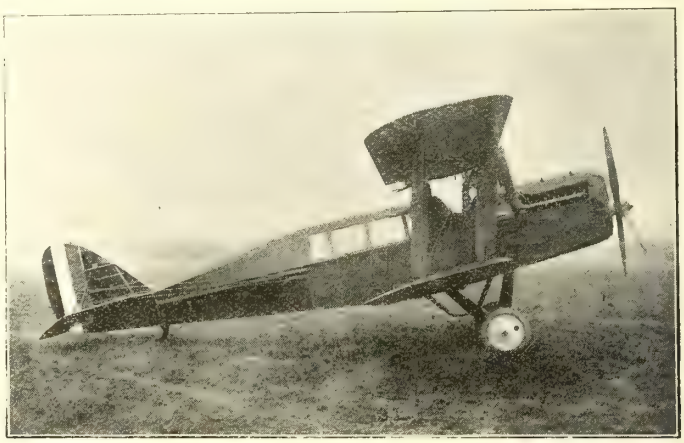
Useful Load—4 passengers with luggage or 800-1,000 lbs. of freight.

Cruising Speed—95-100 m.p.h.

Range—450 miles.

These machines are run on the De Havilland Aeroplane Hire Service at an inclusive fare of 2*s*. 6*d*. per machine mile (7½*d*. per passenger mile or 3¾*d*. per cwt. mile).

Immediate Delivery.



The DH.34.



Engine—450 h.p. Napier "Lion."

Useful Load—10 passengers or 2,450 lbs. of freight.

Cruising Speed—105 m.p.h.

The machines are being used with conspicuous success on the Air Lines between England and the Continent, operated by the Daimler Airway and the Instone Air Line. One of the DH.34 machines, running on the London - Paris Line, recently completed 23,000 miles in one month, at an average ground speed of 101 m.p.h.

This remarkable record demonstrates the reliability and efficiency of the type.

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THE WEEKLY COMMENTARY.

A description of the air-cooled radial engines which have been developed by Armstrong Siddeley Motors, Ltd., Coventry, is given below. It will be seen that these engines are of that simple and straightforward design which is never the outcome of chance, but is arrived at only by thoughtful design and experiment.

The larger of the two engines has recently very successfully passed the official type tests, and should prove to be an exceedingly useful engine for the new high-performance fighter which the R.A.F. so urgently needs, and it is to be hoped that the makers will very shortly receive substantial orders for this engine as a reward for their perseverance in its development.

The smaller of the two engines should be an ideal power plant for advanced training machines—and both should find their uses in connection with non-military aviation.

The fate of the Short all-metal machine which was exhibited at Olympia in 1920, and subsequently purchased by the Air Ministry, has recently been discussed in the Daily Press and in Parliament. A note concerning the Parliamentary part of this discussion will be found on a later page.

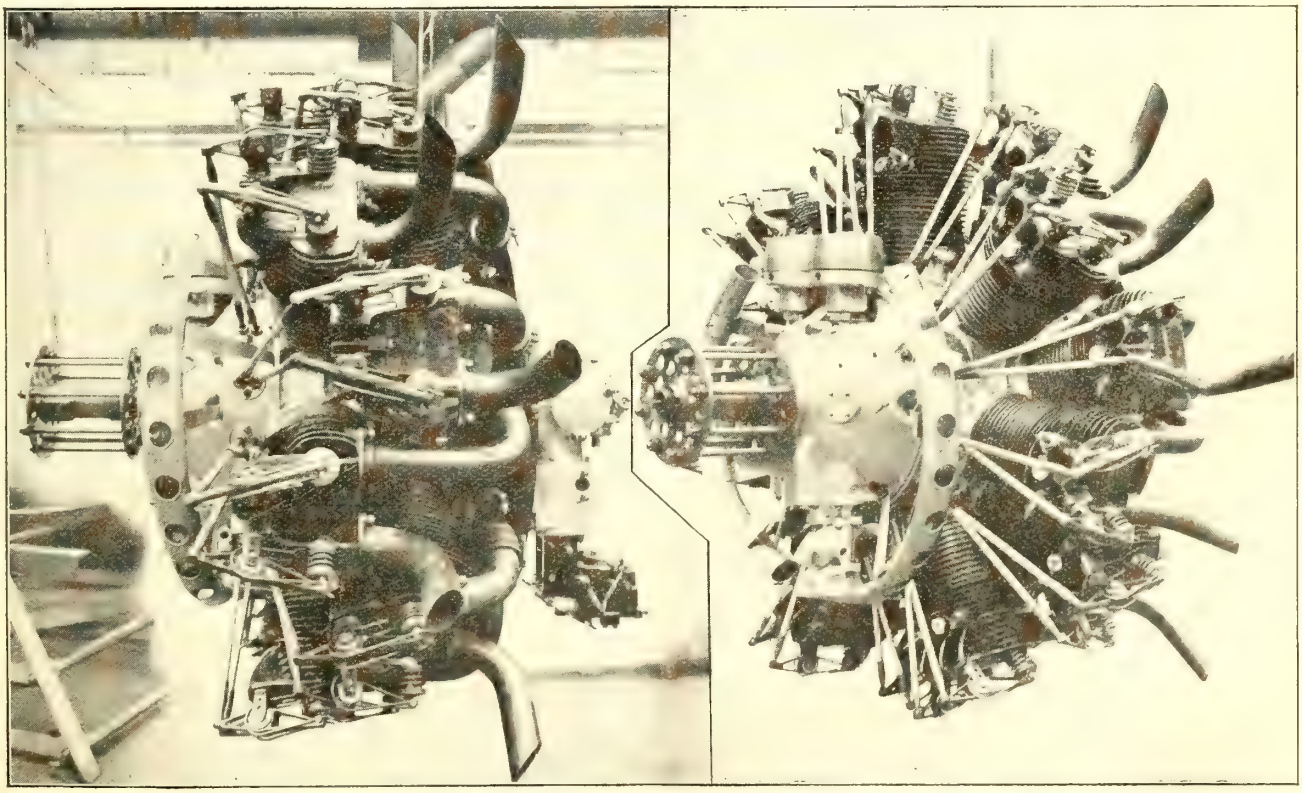
Attention is drawn to the new Air Navigation Regulations, made in accordance with the International Convention, which came into force on July 14th. These do not materially differ from the previous interim regulations, but certain important new rules which are to be enforced from the beginning of next year are included in the same Order.

THE SIDDELEY AIR-COOLED RADIAL ENGINES.

The two radial air-cooled engines built by Armstrong Siddeley Motors, Ltd., of Coventry, are the result of a long period of experimental work. Actually one believes that the original design of the engines was the result of an ideal specification issued by the Engine Section of the Air Board in the far off days of 1917. That specification was issued with the belief that all its provisions were not practically attainable—but it is doubtful whether those who drew it up realised quite how many difficulties were to be encountered before an engine to comply with it could be produced. However, the practical problems have been solved, and the Siddeley "Jaguar" has passed the Air Ministry Type Trial tests with great success and may now be reckoned among the relatively small band of proved modern aero-engines.

There are two Siddeley air-cooled engines, the "Lynx" 7 cylinder 160 h.p and the "Jaguar" 14 cylinder 320 h.p. type. The "Jaguar" is a two-row edition of the "Lynx," and the cylinders, connecting rods, valve gear and general construction of the two engines are identical.

The general features of the two may therefore be dealt with at one time, such minor divergences as exist being pointed out in the process.



Two views of the 14 cylinder 325 h.p. Siddeley "Jaguar" air-cooled engine.

Cylinders.

The cylinders of the two engines are of compound construction—steel barrels with aluminium alloy heads. The barrels are machined from solid steel ingots, and are provided with radiating fins extending down to the crankcase circumference.

The cylinder heads are cast in aluminium alloy, and are screwed onto the top of the cylinder barrels warm, so that they shrink on tight.

The barrel is fitted with a lock nut, in the form of a screwed-on extra radiating fin. When the head is screwed into place this lock ring is screwed tight against the head casting, and a coned facing pinches the aluminium casting into the threads on the barrel. This construction is thus somewhat similar to that used on the Siddeley "Puma" engine.

The combustion space in the head is roughly hemispherical. Valve ports and guides are cast in the head. Valve seats are of bronze expanded into the casting.

The cylinders are fixed to the crankcase by the agency of a steel ring, pinned to the crankcase, into which the cylinders screw, and are locked in position by a double-coned locking ring which screws hard up on the ring.

Pistons.

The pistons are of aluminium alloy, die cast on the outer surface, with sand cores for the interior. They are fitted with two cast-iron gas rings and one scraper ring above the gudgeon pins, and one scraper ring below the gudgeon pin. The gudgeon pins are hollow, and float in the gudgeon pin bosses, spring rings in the outer end of the boss bore limiting the end play available. The gudgeon pins are of very large diameter and provide a very ample bearing surface, both in the piston bosses and for the little ends of the connecting rods.

Not only does the gudgeon pin float in the piston, but it runs on a floating bush in the little end of the connecting rod.

Connecting Rods and Big Ends.

The connecting rods are of steel, machined all over to definite weight to ensure perfect balance. The big end proper is a separate part, coupled to the master connecting rod by two pins, and to the remaining six rods by one pin each.

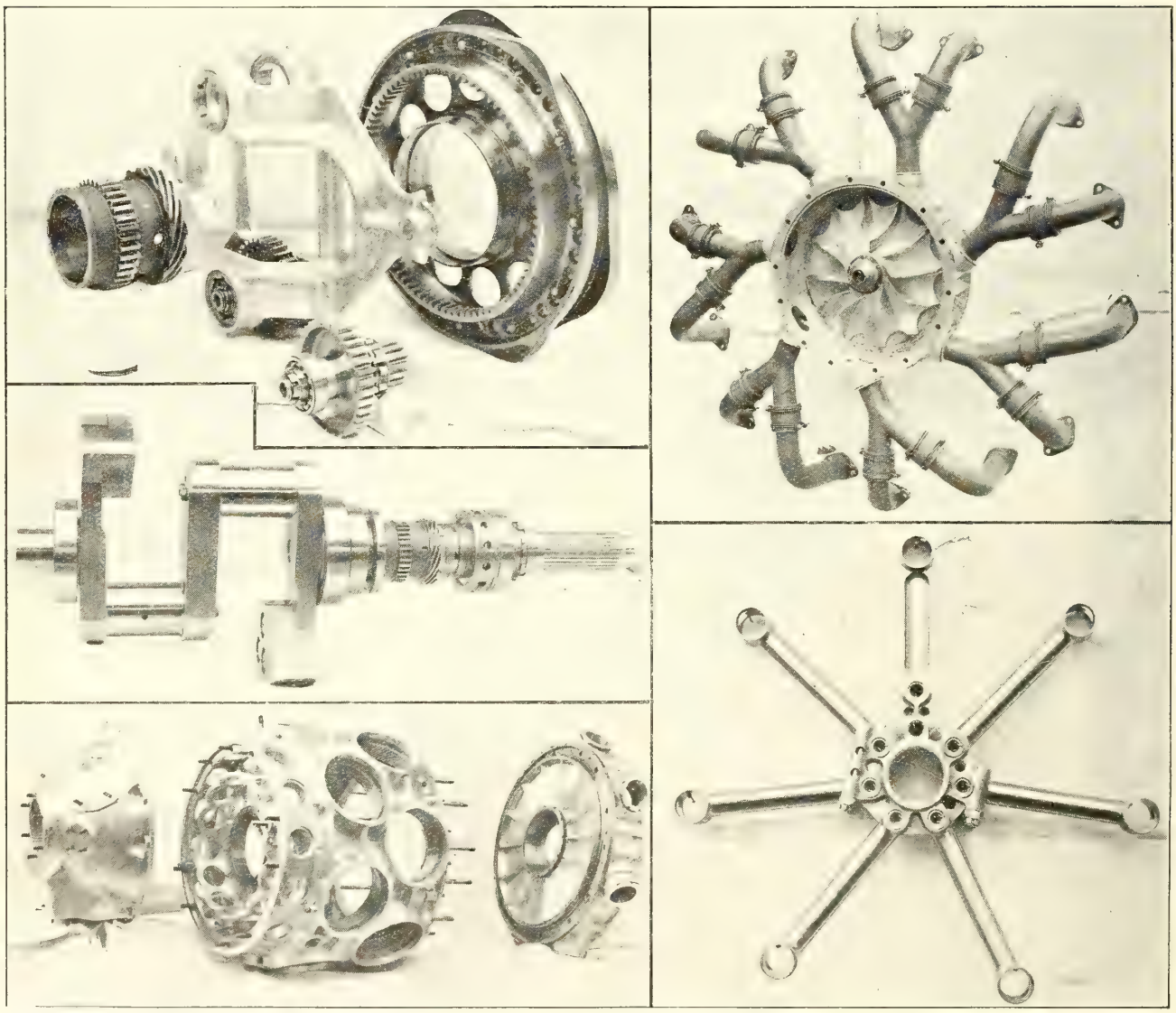
This big end is a split steel bearing shell fitted with side webs carrying the connecting-rod pins, and extended in the line of the master rod to carry the second pin which locks big end and master rod together. The pins for the ordinary rods float in bronze bushes in the big end webs. They are locked against end movement by spring rings similar to those used for the gudgeon pins. The big end bushes in the rods also float on the rods themselves. The rods are of circular section, bored out to a large internal diameter. The master rod is of channel section.

Crankshafts.

The crankshaft of the "Lynx" is of the single-throw type. That of the "Jaguar" is of the two-throw opposed type. Both are machined in one piece and are carried on three journal roller bearings, and held longitudinally by a double acting ball thrust race at the airscrew end. Bronze counterbalance weights are fitted to the crankshafts of both engines.

Crankcase.

The engine body is made in three parts. The crankcase proper carries cylinders, tappet guides and engine-carrying devices. In the case of the "Lynx" four feet carrying studs for attachment to the fuselage are cast on the crankcase. In the "Jaguar" a flange is provided to which a pressed steel cone is attached, and this latter forms the engine bearer.



DETAILS OF THE SIDDELEY "JAGUAR."—On the left: Top, the cam rings, the intermediate gears and frame, and the crankshaft gear sleeve; Centre, the crankshaft with bearings and gears in place; Bottom, the three components of the crankcase. Right,: Top, the induction system showing the fan; Bottom, the connecting rod and big-end assembly.

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Aeroplanes for Commercial and Military Use.

The Vickers "Viking" was classified FIRST in the following competitions at the INTERNATIONAL SEAPLANE COMPETITIONS at ANTWERP, July, 1920.

1. **Shortest time in "unsticking" from water.**
2. **Fastest time over a given circuit.**
3. **Climb to 1,000 metres.**
4. **Altitude with full load**

Flying Boats for Commercial and Naval Use.

Brief Specification:
Viking Mark IV

6 Passengers and baggage or 1,360 lbs Freight.
RANGE · 340 miles.
SPAN: 50′ 0″
HEIGHT: 15′ 1″
LENGTH: 35′ 0″

The Vickers "Viking" was the winner of the FIRST prize of £10,000 for the Amphibian Class of Aircraft entered for the BRITISH AIR MINISTRY COMPETITION, September, 1920.

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The back cover carries the crankshaft rear bearing and also plays an important part in the induction system—as will be described later.

The front cover carries the crankshaft front journal and thrust bearing and the auxiliary drives for cams, ignition gear and oil pumps.

Valve Gear.

Each cylinder is fitted with two valves—one each inlet and exhaust. These valves, their springs and washers are all identical and interchangeable.

The valves are controlled by two cam rings, one for exhaust and one for inlet valves. Each ring carries three cams and rotates at one-sixth engine speed in a direction opposite to that of the engine. The cam ring drive is taken from the front end of the crankshaft, and is in the form of an epicyclic gear The valves are operated through roller tappets, ball-ended tubular push rods, and rocker arms in the usual way.

The rocker arms are of very light and stiff construction, and are carried in ball bearings at their pivots.

Lubrication.

Lubrication is on the dry base system—a scavenger pump of about 35 per cent. greater capacity than the pressure pump being fitted. Both pumps are of the gear type, and are made with duralumin gears. Oil is taken from the tank, and forced through the hollow crankshaft to the crank pin—or pins in the case of the "Jaguar"—where it is discharged through a central hole. Two further holes, one at each end of the crank pins, serve for the return of the greater part of the oil. The clearance between the big end bearing and the crank webs is adjusted so that only a limited amount of oil is thrown out by the crank—just enough to provide for cylinder lubrication. The greater part of the oil returns through a separate channel in the crankshaft, and is not allowed to splash about the crankcase.

The oil filter is fitted with a gauze in a movable lantern held in place by a spring, and so arranged that, if the filter becomes choked, the lantern is forced off the seat by the oil pressure and the engine is lubricated by unfiltered oil.

Induction System.

Mixture is supplied by a normal carburetter—a dual type in the "Jaguar" and a single type in the "Lynx." A special air intake, with a valve under the pilot's control, is fitted so that air may be taken either from the neighbourhood of the cylinder heads, or from outside the cowl, thus allowing a control of air temperature. Above the carburetter is an exhaust jacketed heater box, and the mixture passes thence to the centre of a centrifugal fan fitted in the rear cover of the crankcase. This fan, which rotates at crankshaft speed, serves thoroughly to mix the petrol and air supplied by the carburetter, and distributes the mixture uniformly to all cylinders.

The front of the fan chamber is the rear wall of the crankcase. In the rear cover there is formed an annular passage through which the hot oil from the scavenger pump passes on its way to the oil tank. The mixture in the chamber is thus warmed from both sides.

There are seven equally spaced mixture outlets round the circumference of the fan chamber, and seven induction pipes take mixture thence to the cylinders. In the "Jaguar" these pipes are forked—each pipe branching to serve one front and one rear row cylinder. In the "Lynx" the pipes are straight and each serves one cylinder only.

Auxiliaries.

The arrangement of the engine auxiliaries is somewhat different in the two engines. The "Jaguar" is fitted with a coil and accumulator ignition. The "Lynx" with magneto ignition.

In the "Jaguar" there are two vertical shafts carried in the crankcase front cover, one on each side of the crankshaft. These shafts are driven through skew gears from a sleeve on the crankshaft which carries the timing gear drive. The vertical shafts drive at their upper ends two 14-cylinder distributors with the appropriate contact breaker. The lower ends drive the two oil pumps.

The "Lynx" auxiliary drives are generally similar. According to one specification two 7-cylinder magnetos are driven from the rear of the engine, but one has a recollection of a magneto mounted in the position occupied on the "Jaguar" by the distributors. The arrangements in this respect have been modified recently, and one is a little uncertain as to the present standard in this matter.

General.

In design and in construction these engines show very strong evidence of the thought and care which has been expended upon them. The construction throughout is about as simple as it is possible for so complex a mechanism to be, although one can see evidence that the designer has had in view the practical problems of construction—and in consequence the engines must be about the most straightforward manufacturing jobs in their own classes.

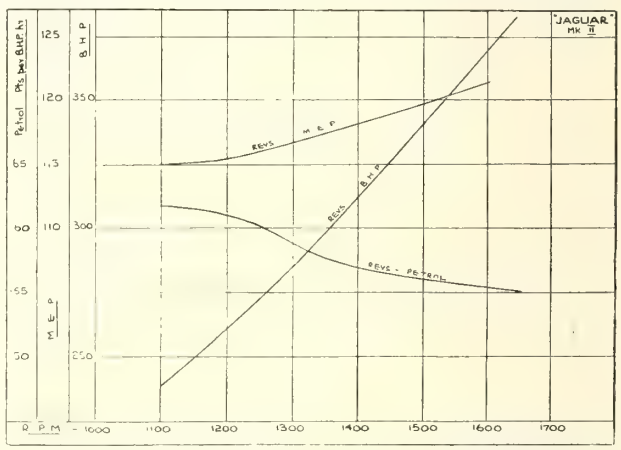
The workmanship put into the engines itself is of the very first class—and the stripped "Jaguar" which had just completed the type test showed no signs whatever of having suffered in the process. It had obviously run, but the fit of the moving parts was of that silky nature which at once contradicts any suspicions of the beginning of wear.

The "Jaguar" Type Tests.

The type test of the "Jaguar" engine, made under the supervision of the Air Ministry, was carried out between June 17th and June 21st. The engine was new, having only run the usual maker's test before making the type test. The trials were made under the new regulations, which call for 50 hours' running in 10-hour non-stop runs—instead of calling for only one such run and allowing the remaining 40 hours to be worked off in convenient instalments.

The first operation was 40 mins. run for the taking of a power curve on June 17th. This was followed by 9 hrs. 55 mins. run at 284.6 B.H.P. and 5 mins. at 330.2 B.H.P. On the 18th, 19th, 20th, and during the night 20th-21st, four more ten-hour runs—9 hrs. 55 mins. at cruising H.P. and 5 mins at full power were made. The average cruising powers on these runs were: 294.1, 293.6, 293.9 and 292.8 B.H.P.; and the maximum powers were: 331.4, 330.3, 330 and 342.2 B.H.P. respectively.

On the 21st June 40 mins. run at 737 r.p.m. was followed by a satisfactory acceleration test. On the same day a high-speed test—1 hour at 1,751 r.p.m. and 267 B.H.P.—and an



Power curves of the "Jaguar" engine taken on the type test. Note that M.E.P. increases with speed owing to the fan induction.

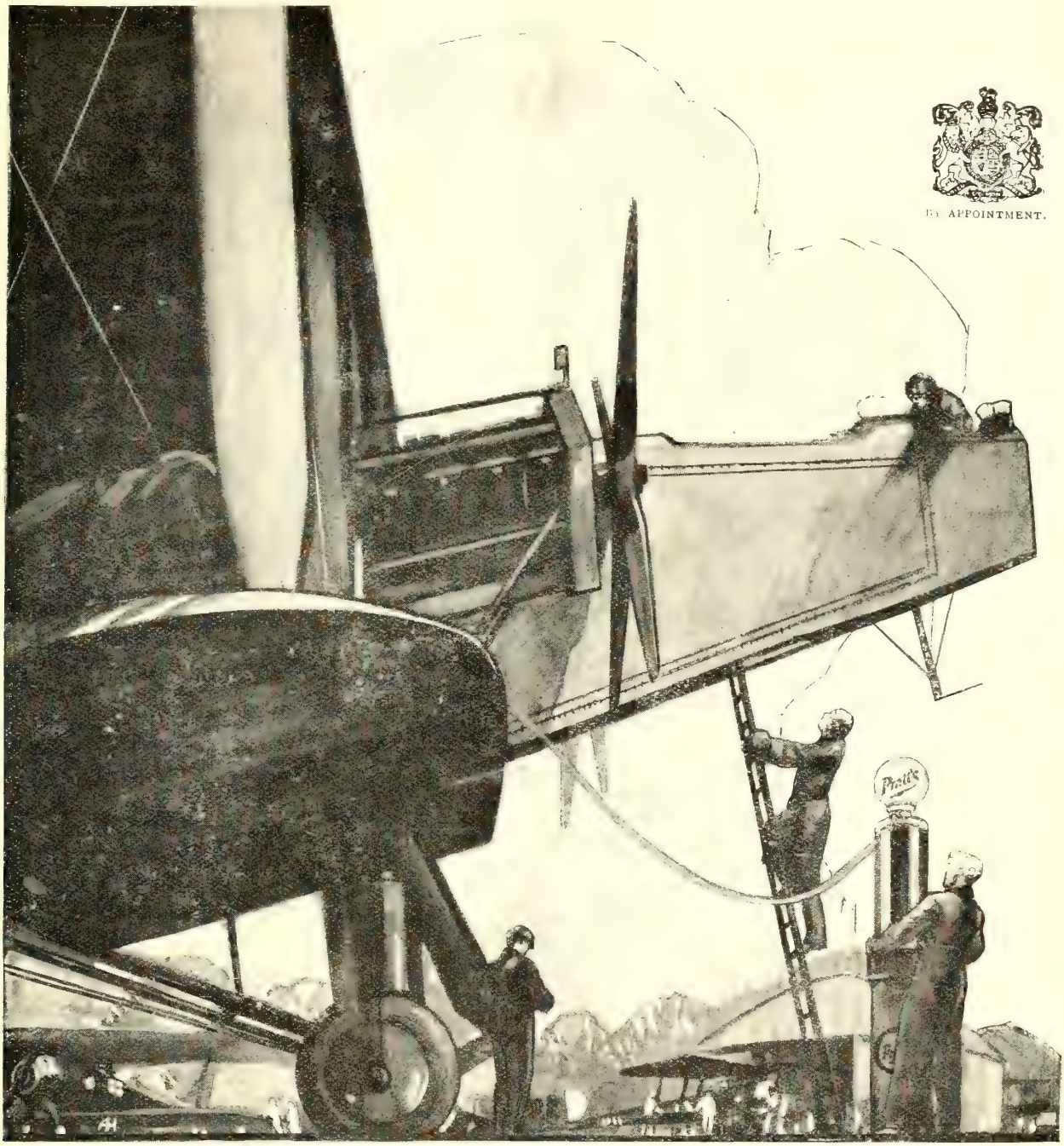
hour of test at 1,648 r.p.m. and 373.5 B.H.P. and a second power curve run were made.

The fuel consumption over the whole test was under 0.6 pints per h.p. hour, and the oil consumption was only 0.02 pints per h.p. hour. The power curve taken after the test was better than that taken at the beginning—which tends to show that the engine would have done better had it had a little more preliminary "running in," and as has been mentioned already the condition of the engine after the test was excellent—almost uninterestingly as it should have been in fact.

It is gathered that good as the consumption of fuel on test was, still better figures can be attained by the engine under normal conditions.

Specifications of the Siddeley Air-Cooled Engines.

	Jaguar.	Lynx.
No. of Cylinders	14	7
Bore	5 ins.	5 ins.
Stroke	5½ ins.	5½ ins.
Normal Rated B.H.P	320	160
Maximum Rated B.H.P.	360	180
Normal R.P.M.	1,500	1,500
Maximum recommended R.P.M. ...	1,650	1,650
Direction of rotation	L.H. Tractor.	L.H. Tractor.
Petrol consumption...	.53 pts./B.H.P./hr.	.53 pts./B.H.P./hr.
Oil consumption ...	.03 pts./B.H.P./hr.	.04 pts./B.H.P./hr.
Weight	710 lbs.	—
Compression ratio ...	5 to 1	5 to 1
Length, overall ...	46.5 ins.	—
Length, engine-bearer plate to back of propeller	26.5 ins.	—
Diameter—over cylinder heads	43 ins.	43 ins.
Diameter — Sparking Plug pitch circle ...	33 ins.	33 ins.
Diameter — Bearer Bolt pitch circle ...	25 ins.	—



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PARLIAMENT AND METAL AIRCRAFT.

The fate of the Short all-metal machine known as the "Silver Streak" has recently come to the notice of the Daily Press in connection with the latest irruption of an interest in aerial matters, and from the Press has penetrated to Parliament. On July 10th, in reply to a question asked by Sir W. Joynson-Hicks, the Secretary of State for Air made a statement which with addenda is here given :

CAPT. THE HON. F. E. GUEST.—My attention has been called to the statements which have appeared in the Press with reference to Messrs. Short Brothers' all-metal aeroplane. This aeroplane was built and exhibited at Olympia by the firm in 1920. It was not designed to meet any particular Service requirement. Nevertheless, with a view to the encouragement of originality and enterprise, it was immediately purchased by the Air Ministry, and, as the structure incorporated certain novelties, the use, in particular, of a certain alloy of aluminium, the aeroplane was in 1921 sent to the Royal Aircraft Establishment to test the suitability of this material to withstand corrosion and vibration. In this connection the problem of corrosion (tests of which must necessarily take a considerable time) is one of the greatest importance and is, at the present time, being investigated by a special Sub-Committee of the Department of Scientific and Industrial Research. Pending a report of this Sub-Committee and until a satisfactory solution of the problem has been arrived at, it is clearly most undesirable to place a large order for these aeroplanes. It is therefore not intended to order any more at present. Owing to the doubt as to the strength and reliability of the material used, it was not considered desirable to put this aeroplane through full air tests, but permission was granted to a pilot of the Experimental Section to fly it without load and without unnecessary manœuvres. As a result of these modified tests, a favourable report on the behaviour of the aeroplane in the air was received.

VISCOUNT CURZON.—Pending the report of this Sub-Committee, will Messrs. Short be allowed to construct any further machines to the same drawing? CAPTAIN GUEST.—No fresh orders will be given pending the report of the Committee. VISCOUNT CURZON.—Will they be allowed to construct fresh machines on their own? CAPTAIN GUEST.—I think it would be inadvisable of them to do so.

Capt. Guest is naturally somewhat handicapped in dealing with questions of this type by the fact that as a member of the Government he can scarcely lay such blame as exists on the shoulders of the proper party—which is the Government as a whole, and not the Air Ministry as such. The Short all-metal machine was designed and built by Short Bros. as a private venture, and as stated by Capt. Guest was bought by the Air Ministry for experimental purposes. Not having been built to any Service specification numberless questions arose as to the appropriate tests to which it should be submitted, for very obviously the precise tests to be inflicted are conditioned by the purpose for which the machine is intended. The delay which was incurred is due to the fact that the Air Ministry is a Government Department—and the same Press which howls about Government delay would be the first to raise a super-howl if any important official in a Government department were to take the law into his own hands in such affairs and spend public money in irregular experiments. The delay was regrettable—but the machine was tested and gave such promising results that the Air Ministry had practically decided to order two machines from Short Bros. of similar construction, but of a design to meet a definite service specification.

Strengthened greatly by the applause of the same Press which is now attacking the Air Ministry for not ordering Aircraft, the famous Geddes Committee, with the lack of any sense of proportion which seems to have been its chief qualification, cut down the Air Ministry's estimates to such an extent as seriously to jeopardise the continuance of their regular programme of experimental work, and to make it absolutely impossible for them to spare any sum for an extra experiment of this nature.

The two additional Short machines were not ordered. Instead the original "Silver Streak" will have to be used for the further tests which could have been made more satisfactorily and more expeditiously had the two new machines been available.

It is very greatly to be regretted that this particular experiment should have been cut off in this manner. But the Air Ministry is entirely right in refusing to interfere more than is absolutely necessary with its systematic experimental policy in order to make an interesting and probably useful test outside of its programme. That programme actually includes a large expenditure on experimental metal construction undertaken by various firms.

METAL AIRSCREWS.

In answer to a further question by Sir Joynson-Hicks, relating to metal airscrews and the alleged promise by the French Government of a large order for metal airscrews to a British engineer, Capt. Guest said :—

Experiments and tests have been in progress since 1918 with satisfactory results and have now reached a stage at which it would be justifiable to place production orders, although a large production order is not possible at present owing to limitation of funds; moreover, the war stock of wooden propellers will suffice to meet requirements this year. I am unable to confirm the statement that such an order as mentioned has been placed by the French Government in this country. The Air Ministry is continuing its experiments, and a number of contracts for experimental propellers of more recent design have been placed and other contracts are about to be placed.

THE NEW AIR NAVIGATION REGULATIONS

The Air Navigation Order, 1922, which came into force on July 14th, is an amendment to the regulations issued in 1919, differing mainly in certain details prescribed by the requirements of the International Air Navigation Convention.

There are other features of some importance included in the new regulations, of which the following are notable :—

(1) From January 1st, 1923, all aircraft will be required to carry certificates of airworthiness, instead of only public transport machines.

The daily certificate, however, is required only of public transport machines.

(2) Every British aircraft shall when flying carry such instruments as are prescribed by the Secretary of State.

In addition the fees for the various certificates and licences have been revised. The fee for original registration of an aircraft is £1 1s., for renewal of the certificate of registration 5s.

The fees for the issue of a certificate of airworthiness for a type aircraft are as follows :—Nominal H.P. not over 200, £65, N.H.P. not over 400, £90, N.H.P. not over 600, £110, and N.H.P. over 600, £125.

These fees may be reduced for types which so resemble existing types as to reduce materially the work of testing and examination. For subsequent aircraft of a certificated type the fee is to be £5 5s.

The fee for each medical examination and flying test of a pilot is £1 1s., and the fee for each licence and technical examination is 5s.

The Order makes provision for the exemption from its provisions of the Irish Free State if at any subsequent date the said State makes separate provision for the giving of effect to the international convention.

The new regulations as to airworthiness certificates will, one imagines, be interpreted with a certain degree of elasticity. It may be assumed that experimental aircraft will at least be allowed a temporary airworthiness certificate without incurring the full charge for the grant of a normal certificate—otherwise the results in some cases will be unfortunate. An ex-officer of the R.A.F. who did an immense amount of work in the development of a highly useful type of aircraft during the war has during the last two years devoted much of his leisure and of his not very great financial resources to the design and construction of a moderate-powered aeroplane containing many novel and promising features. To prohibit his use of this machine unless he first paid the fee of £65 for a type airworthiness certificate would be a serious hardship. There are not so many private individuals ready to undertake experimental development work at their own expense that we can safely afford to discourage them in this way.

And obviously in any case of a purely experimental type the fees are sufficiently heavy to serve as a discouragement to manufacturers. Exception certainly should be made in the case of any machine of an experimental nature, and the regular scale of fees should apply only to machines which pass into the production stage.

A CIVIL AVIATION AFFAIR.

If any reader of this paper who has a few hundred pounds to spare would like to take an active interest in a private limited liability company which has been running successfully for the last three years, he can be put in touch with the present directors of the firm. They will be prepared to give him the fullest possible particulars and every assistance in studying the firm's methods before fixing up a definite agreement. Letters marked "Partnership," c/o THE AEROPLANE, 175, Piccadilly, W. 1, will be forwarded to the firm.

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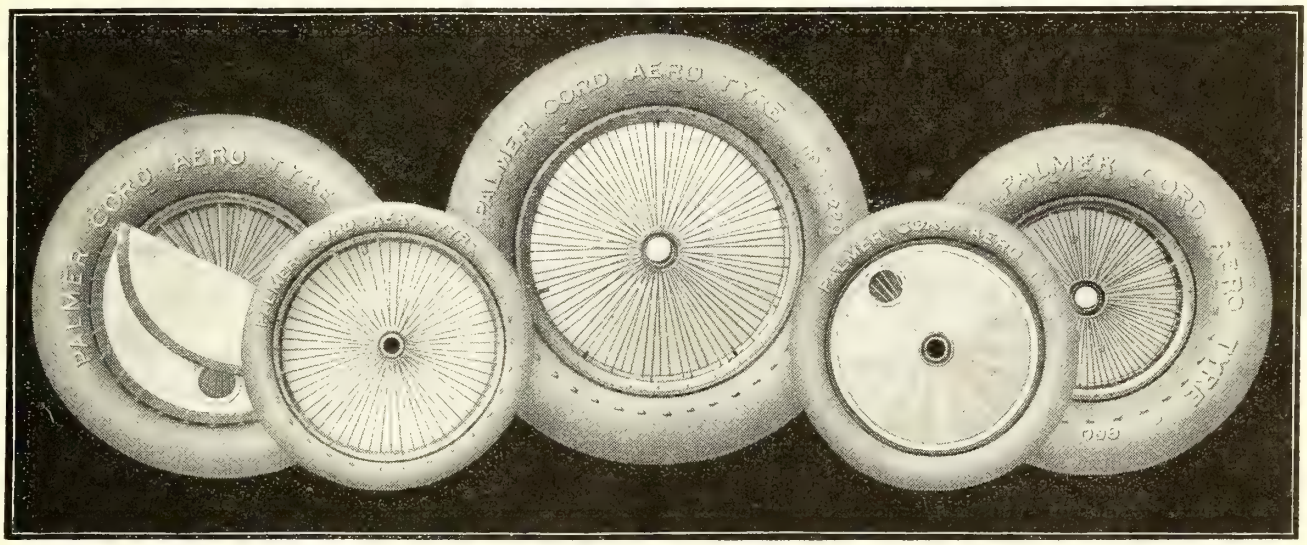
SUPERMARINE AVIATION WORKS, LTD.—Debenture dated June 27th, 1922, to secure £20,000, charged on the company's undertaking and property, present and future, including uncalled capital. Holders :—Branch Nominees, Ltd.

RECEIVERSHIP

PORTHOLME AIRCRAFT CO. LTD.—E. A. Hurpham, of 37, Brixton Hill, S.W., was appointed receiver on June 18th, 1922, under powers contained in debentures dated October 20th, 1921.

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Tyre Size	Wheel No.	Hub Length	Hub Bore	Track Line
		m/m	m/m	m/m
300×60	16	111.12	25.4	Central
,,	17	72.39	12.7	Central
450×60	30	89.	31.75	Central
,,	138	130.	38.09	Central
575×60	21	160.	28.	Central
,,	34	150.	31.75	104/46
,,	111	150.	38.09	104/46
600×75	21	160.	28.	Central
,,	34	150.	31.75	104/46
,,	111	150.	38.09	104/46
700×75	78	178.	44.45	132/46
,,	79	178.	44.45	Central
,,	100	178.	38.09	132/46
,,	101	178.	31.75	132/46
700×100	77	178.	44.45	132/46
,,	92	185.	55.	135/50
,,	95	185.	55.	Central
700×100	96	178.	55.	132/46
,,	99	178.	38.89	132/46
,,	112	150.	38.09	Central
650×125	119	178.	55.	132/46
750×125	77	178.	44.45	132/46
,,	92	185.	55.	135/50
,,	95	185.	55.	Central
,,	96	178.	55.	132/46
,,	99	178.	38.89	132 46
,,	112	150.	38.09	Central
800×150	82	185.	55.	135/50
,,	85	185.	55.	Central
,,	36*	185.	55.	135/50
,,	40*	185.	60.32	135/50
,,	152	185.	66.67	135/50
,,	163*	185.	66.67	135/50
1000×150	131	220.	66.67	Central
,,	102	185.	55.	125/60
,,	141	250.	80.	Central
,,	201	185.	60.32	125/60
1000×150	209	185.	55.	Central
,,	210	185.	60.32	Central
1000×180	148	220.	80.	Central
,,	149	185.	55.	Central
,,	155	220.	66.67	Central
900×200	107	185.	55.	Central
,,	108	185.	55.	125/60
,,	128	220.	66.67	Central
,,	137	250.	80.	Central
,,	202	185.	60.32	Central
1100×220	134	220.	66.67	Central
,,	136	250.	80.	Central
1250×250	133	250.	80.	Central
,,	154	304.8	101.6	Central
1500×300	115	304.8	101.6	Central
,,	126	304.8	152.4	Central
1750×300	139	400.	152.4	Central

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U/N|NN.

R.A.F. INTELLIGENCE.

Air Ministry, July 17th.

Wing/Cmdrs. I. T. Courtney, O.B.E., from C. & M. Party, Felixstowe, to H. Q. C. A., Supernumerary, 13/7, Henry Ashborne Treadgold, M.D., B.A., from Air Ministry (D.M.S.), to R.A.F. Depot, Supernumerary, 30/6, C. F. Kilner, D.S.O., from Boys' Wing (Cranwell), to H.M.S. *Argus*, to command R.A.F. unit, 15/8; G. P. Grenfell, D.S.O., from Instrument Design Estab., to No. 1 F.T.S., Supernumerary, 17/7; R. J. F. Barton, O.B.E., from R.A.F. Depot, to command Boys' Wing (Cranwell), 1/8.

S/Ldrs. C. P. Ogden, O.B.E., from Marine and Armament Exp. Estab., to R.A.F. Depot, Supernumerary, 15/7; D. S. K. Crosbie, O.B.E., from Air Ministry (D. O. I.), to R.A.F. Depot, Supernumerary, 19/7; E. W. Craig, M.C., M.B., from R.A.F. Depot, to Air Ministry (D. M. S.), 30/6, J. Sowrey, A.F.C., from R.A.F. Depot, to R.A.F. Cadet College (Ground Wing) (Cranwell), 1/8; F. W Stent, M.C., from R.A.F. Depot, to M.T. Repair Depot, 1/8.

F/Lts. N. R. Fuller. The notifications which appeared wherein this Officer was posted from R.A.F. Depot to No. 1 F.T.S., with effect from 1/7/22, is hereby cancelled; Hon. J. H. B. Rodney, M.C., from C.F.S., to No. 24 Sqdn., 1/7; R. F. Durrant, A.F.C., from No 10 Group H. Q., to School of Naval Co-operation and Aerial Navigation, 18/7; E. F. Turner, from R.A.F. Depot, to No. 10 Group H.Q., 13/7; H. M. K. Brown, from No. 39 Sqdn., to School of T.T. (Men), 10/7; C. E. Wardle, from No. 24 Sqdn., to School of T.T. (Men), 6/7; E. R. Pretyman, A.F.C., from No. 56 Sqdn., to No. 25 Sqdn., Supernumerary, 4/7; R. H. Smyth, M.C., from No. 1 Stores Depot, to No. 1 F.T.S., 1/7; J. Roberts, from R.A.F. Depot, to M.T. Repair Depot, 10/7; W. L. Fenwick, from No. 2 Sqdn., No. 12 Wing (Ireland), to No. 24 Sqdn., Supernumerary, 17/7; H. A. Tweedie, O.B.E., A.F.C., from R.A.F. Depot, to Air Ministry (D. O I.), 19/7; T. C. Luke, M.C., from Inspector of Recruiting, to R.A.F. Depot, Supernumerary, 14/7; D. Mitchell, from Egyptian Group H.Q., to No. 4 F.T.S., 26/6; W. C. Green, M.C., from No. 4 F.T.S., to Stores Depot, Egypt, 26/6; J. F. Lawson, A.F.C., from No. 5 F.T.S., to Record Office, 1/8; E. J. P. Burling, D.S.O., D.F.C., from No. 230 Sqdn., Felixstowe, to School of Naval Co-operation and Aerial Navigation (No. 230 Sqdn.), 10/7; W. D. Miller, M.B., from Marine and Armament Experimental Estab., to R.A.F. Depot, Supernumerary, 12/7; O St. Leger Campion, from R.A.F. Central Hospital, to No. 2 Sqdn., No. 12 Wing (Ireland), 10/7; T. R. S. Thompson, M.B., from No. 56 Sqdn., to Stores Depot, Egypt, 10/6; T. J. Thomas, M.B., from No. 4 F.T.S., to Engine Repair Depot (M.E.), 2/6.

Royal Air Force Club Cricket Week.

Arrangements for the Royal Air Force Club Cricket Week are now nearing completion. By arrangement with the Eastbourne Club, the Saffrons' ground at Eastbourne has been secured for the dates September 20th-26th inclusive, and the football fixtures arranged for that time have been postponed.

Two three-day matches will be played; the first (on Sept. 20th, 21st, 22nd) will be North of England *v.* South of England. The second (Sept. 23rd, 25th, 26th) will probably be an XI of Past R.A.F. Officers and Men *v.* The Rest of England, or a similar fixture.

The following ex-R.A.F. officers and men have accepted invitations to play: P. G. H. Fender (Surrey); Hon. F. S. G. Calthorpe (Warwick); A. H. H. Gilligan (Sussex); A. Jeacocke (Surrey); S. L. Amor (Somerset); Hobbs (Surrey); F. E. Woolley (Kent); Hardinge (Kent); Geary (Leicester); Parker (Gloucester); and Waddington (Yorks).

Others who have accepted invitations to play include: Hon. L. H. Tennyson (Hants); A. E. R. Gilligan (Sussex); A. W. Carr (Notts); N. Haig (Middlesex); E. Tyldesley (Lancs); R. Kilner (Yorks); Parkin (Lancs); G. Gunn (Notts).

The matches will have an added interest owing to the fact that several of the players may be selected for the South African tour and this may be the last occasion upon which the public will be able to see them before their departure.

Tickets for the reserved covered stand, and other information, may be obtained from the Hon. Secretary, Captain M. G. Kiddy (Telephone: Victoria 2112).

R.A.F. Lawn Tennis.

Singles Championship:—S/Ldr. H. J. F. Hunter beat F/O H. J. Gilbert.

Doubles Championship:—S/Ldr. Hunter and S/Ldr. E. H. Johnston beat F/O H. J. Gilbert and F/O C. R. Clayton.

R.A.F. Plate:—F/Lt. F. G. M. Williams beat F/Lt. H. G. White.

Inter-Services Lawn Tennis.

At Queen's Club on July 14th and 15th the Army won the Inter-Service Lawn Tennis Championship with 9 matches, the R.A.F. being second with 6 and the Navy none. The following are the results of the matches in which the Air Force played:—

Maj. A. N. W. Dudley and Lieut.-Col. A. Berger beat F/Lt J. Duminy and F/Lt. C. Noble (6—4, 6—4).

F/O H. J. Gilbert beat Lieut.-Cmdr. Stow (2—6, 6—1, 6—3). F/Lt. Duminy beat Sub-Lieut. A. W. Buzzard (1—6, 6—3, 6—4). Capt. H. S. L. Barclay beat S/Ldr. H J. F. Hunter (10—8, 4—6, 7—5).

S/Ldr. Hunter and S/Ldr. E. H. Johnston beat Cmdr. K. F. Sworder and Lieut. W. G. Agnew (4—6, 6—2, 6—3).

F/Lt. J. Duminy beat Maj. A. N. W. Dudley (6—4, 7—5).

F/Lt. Duminy and F/Lt. C. Noble beat Surg. Lieut. Mackenzie and Sub-Lieut. Buzzard (6—4, 4—6, 6—3).

Maj. A. R. F. Kingscote beat F/O H. J. Gilbert (6—0, 6—2). S/Ldr. H. J. F. Hunter beat Cmdr. G. H. Brady (8—6, 5—7, 9—7).

Maj. Kingscote and Capt. Barclay beat S/Ldr. Hunter and S/Ldr. E. H. Johnston (6—3, 6—0).

Henlow.

The R.A.F., Henlow held their Sports on July 5th, on the ground which has been built at Henlow for the Air Force Championships. In spite of the weather, which was about as bad as it could be, the entire programme was carried out and some very good times were made. The Depot Band, which although young, is very good indeed, played the whole afternoon and the official humorists worked hard to amuse the somewhat damp spectators.

Among those present were Air Vice-Marshal and Mrs. Higgins, and Sir Geoffrey and Lady Salmond. Mrs. Higgins presented the prizes at the close of the meeting, after which ceremony there was a general move to the various side-shows, notably an exhibition of the "Wazza" a truly remarkable specimen.

The winners of the various events were as follows:—100 yds.: AC. Down (10-1.5 secs.). 220 yds.: AC. Down. 440 yds.: L/AC. Amos. 880 yds.: AC. MacKenzie. Half-mile open: AC. Jackson. 1 mile: AC. Jackson (5 mins.). 3 miles: L/AC. Coveney (16 mins. 58 secs.).

Long Jump: L/AC. Amos (18 ft. 7½ ins.). High Jump: AC. Fell (5 ft. 9½ ins). 120 yds. Hurdles: L/AC. Amos.

Officers' 220 yds h'cap.: F/O. Abbott, F/O. Warner, F/Lt. Anne. W.O.'s and Sjts.' h'cap. 220 yds.: Sjt. Nichols, Sjt. Thompson, Sjt. Baldwin. Band Race: Sjt. Guthrie.

Putting-the-shot: S/N. Davey (30 ft. 11½ ins.). Tilting-the-bucket: AC Vanner and AC. Jerden. Obstacle Race: Cpl. Searle. Sack Race: AC. Taylor. Consolation Race: AC. Rigby. Boot Race: AC. Ancell.

Tug-of-War: Aeroplane Repair Section.

Martlesham Sports.

On June 15th, the Annual Sports were held and an entertaining afternoon was spent despite the cold weather.

Team events predominated, and up to the Three Mile Team Race the flights were very even as regards points. Cups were provided and won as follows:—

Flight Challenge Bowl, Headquarters' Flight (28 pts.). Tug-o'-War Challenge Cup, Workshops' Flight. Three Mile Team Race Challenge Cup, Headquarters' Flight. One Mile Team Race Challenge Cup, "B" Flight. One Mile Relay Race Challenge Cup, Headquarters' Flight. Individual Challenge Cup, AC. Dunne (11 pts.).

The above races, together with the ordinary sprints which were won individually, provided points for the Flight Challenge Bowl.

The best race of the day was the Three Mile Team, when AC. Dunne, who had already won the mile, was challenged for the first place by AC. Smith, a furlong from home. They ran neck and neck for a short distance then Smith put up a great sprint and won by 20 yards.

Mrs. N. J. Gill distributed the prizes and congratulated the winners on their success.

A concert was held in the Men's Dining Hall at 20.00 hours and proved a great success, thereby repaying F/O. Clinton and the various members of the concert party for the hard work they had put in. And so ended a most enjoyable day.

A GALLANT ENEMY.

It is with great regret that one records the death on July 4th of Freiherr Lothar Von Richthofen, brother of the more famous Captain Freiherr Manfred Von Richthofen and a prominent member of the famous "Richthofen Circus." Lothar Von Richthofen left Berlin on the Berlin-Hamburg Line of the D.L.R., on a modified wartime A.E.G. biplane carrying besides the pilot three passengers and luggage with the normal 200 h.p. six-cylinder Benz engine, and therefore obviously loaded to its limit, and possibly even beyond.

The machine arrived in the ordinary way at the Fuhlsbüttel Aerodrome at Hamburg. The weather was extremely hot and the air was in that turbulent state when, as pilots say, there was no lift in it. When the machine was about 100 feet from the ground in the act of landing it ran into a patch of shadow which was apparently accompanied by a down-draught, with the result that it dropped 70 or 80 feet in one jump. As it did so, only a matter of ten seconds or so before it would have landed in the ordinary way, one wing-tip touched a tree and the undercarriage fouled some telegraph wires. Naturally the machine crashed and the pilot was killed. One of the passengers died next day.

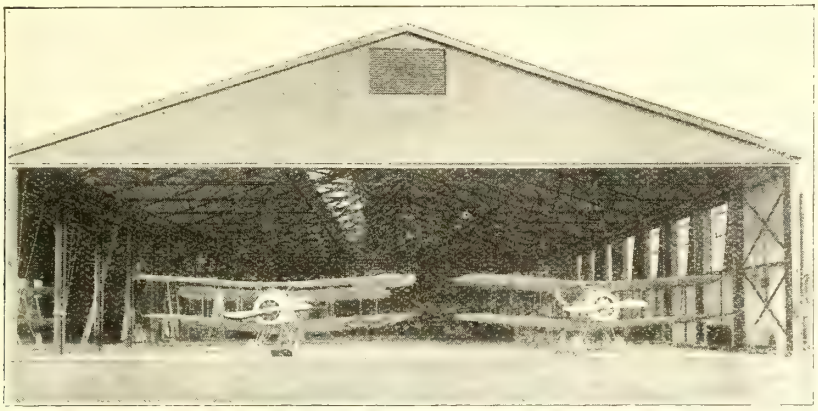
It came to light afterwards that Lothar Von Richthofen had not flown for a considerable time and being essentially a pilot of high-speed single-seaters he was not used to the habits of heavily loaded under-powered passenger machines. This unfortunate incident brings from Germany the suggestion that in future the Government should subsidise only firms which are using genuine civil aircraft and not antiquated war machines.

Lothar Von Richthofen was an extremely gallant fighting man and one of the best pilots of his time in the German Air Force It is much to be regretted that a soldier of his ability should have died in such a trivial accident. British pilots who met the Richthofen squadron in the air will certainly lament the death of their former enemy.—C. G. G.

PERSONAL NOTICE.

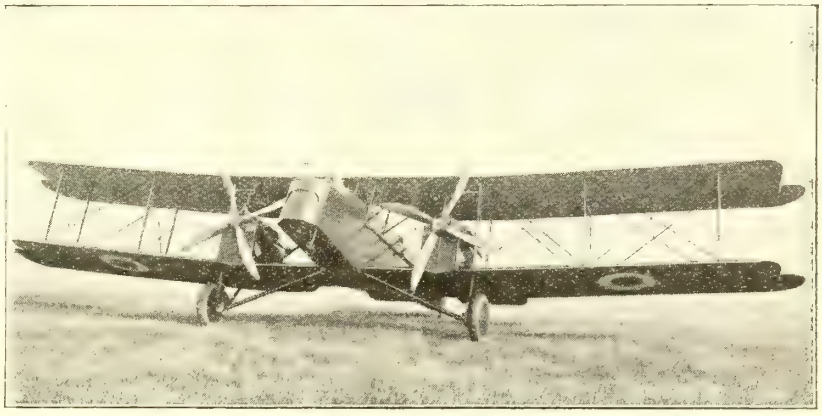
Birth.

ELLERTON.—On 9th July, at 808, Belsize Park Gardens, Hampstead, the wife of F/Lt. A. Spencer Ellerton, O.B.E., R.A.F.—a son.



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CONTINENTAL ARRIVALS AND DEPARTURES.

ABBREVIATIONS.—A.D.—Aircraft Disposal Co. B.A. Berkshire Aviation Co. B.C.—Bristol Aeroplane Co. C.A.—Department of Civil Aviation. D.A.—Daimler Airway. D.H.—De Havilland Aircraft Co. G.E.—Compagnie des Grands Express Aeriens. H.P.—Handley Page Transport Ltd. I.L.—Instone Air Line. K.L.—Koninklijke Luchtvaart Maatschappij. L.A.—Leatherhead Aviation Services. M.A.—Messageries Aeriennes. M.W.—Marconi Wireless Telegraph Co. Ltd. P.O.—Privately owned. P.L.—Petters Ltd. S.F.—Surrey Flying Services.

ANALYSIS OF FIGURES.

Number of trips made during week.—I.L. 40, H.P. 15, D.A. 26, M.A. 26, G.E. 11, K.L. 22, D.H 4, P.O. 1.

Number of passengers carried.—I.L. 83, H.P. 98, D.A. 76, M.A. 27, G.E 11, K.L. 17, D.H. 7. P.O. 1.

Total number of trips by British machines: 86 carrying 265 passengers.

Total number of trips by foreign machines: 59 carrying 61 passengers.

Trips per day.—Monday, 22; Tuesday, 22; Wednesday, 27; Thursday, 24; Friday, 20; Saturday, 20; Sunday, 10.

STATISTICS.

Week ending July 16th, 1922.

Machines, 145; Passengers, 326; Crews, 235; Total Personnel, 561

Corresponding week last year:—

Machines, 115; Passengers, 326; Crews, 143; Total Personnel, 569

Corresponding week, 1920:—

Machines, 108; Passengers, 233; Crews, 126; Total Personnel, 359

NOTES OF THE WEEK.

The Instone "Vimy" in its new form came over from Brooklands on Monday, flown by Mr. Barnard. It has the type of balanced ailerons fitted somewhat similar to those used on the Handley Page W.8s. There is now a door for luggage in the nose of the fuselage and larger rudders have been fitted. There is an oleo type undercarriage which looks as though it ought to be kept in a trouser-press.

The machine was being flown on Monday with some 3,000 lbs. of ballast up and seemed to get off with comparative ease. One rather imagines that the new wings must be very much lighter than the old ones as paint and dope several years thick was bound to weigh a lot. This fact together with the extra lift imparted by the new section of the wings will doubtless give the rejuvenated machine a new lease of life

She made a return trip to Paris on Wednesday.

Mr. Robins on Wednesday left for Paris on a D.H.34 at 16.00 hours and returned to Croydon the same evening about 21.45 hours in semi-darkness. He repeated the performance again the next day.

Mr. D. Handover, who was with the I.A.L. two years ago when they first started up, returned to the aerodrome last week acting as traffic manager. In the last year or so he has been working for the Instone-Poole Ship Line

Handley Page Transport continue to carry big loads of passengers. The Napier W.8 G-EAPJ is being slightly modified, but she will probably be put on the service this week.

The Daimler Airway are now running G-EBBQ on the service again though G-EBBS is still going strong. In fact one is informed that the A.I.D. report on this machine for nearly 500 hours' flying in two months states tha she is in absolutely perfect condition and that the method of inspection and the manner in which she is overhauled is as near perfect as possible.

It is thought that when the Daimler Airway get their third machine they will have such a superfluity of machines that they will have to look for new air routes to operate.

Mr. Leavey came over to Croydon from Penshurst on his red Avro on Monday and returned there later in the evening. He did the same thing on Tuesday, Wednesday and Thursday.

The Surrey Flying Services have re-inaugurated their five shilling joy rides, beginning on Saturday. Messrs. Muir and Youell were kept busy all Saturday and Sunday in spite of rain and wind taking up the enthusiasts.

Mr. Raynham came over from Brooklands on a "Tinsyde." One gathers that he is converting this or a similar machine into an "extra-fast" machine for the Aerial Derby and the King's Cup by subtracting 100 horses.

Later in the week he and Mr. Thomas of *The Motor* went to Strasbourg to take photograhps of the Grand Prix and returned on Sunday bulging with the eminently satisfactory results of their trip, which will be seen in this week's *Motor*.

Mr. Broad came in from Cologne on a D.H.9 on Wednesday having been delivering General Brancker there. He returned to Stag Lane after lunch.

Mr. Shaw has been doing more wireless tests on the Renault Avro and Mr. Bradbury was performing on a Royal Aero Club Avro on Sunday. The same day Mr. Barnard was testing a new Vickers' "Vulcan" which he had just brought over from Brooklands. It lands as if it were fitted with air-brakes.

The Aircraft Disposal Company machines were disporting themselves in the air during the week and one in particular seemed to be giving an imitation of a fog on the ground on Wednesday.—G. D.

THE SCHNEIDER TROPHY CHALLENGER.

This year's race for the Trophy presented by M. Jacques Schneider, of the famous gun-making firm, will be flown at Naples on August 12th. It is open to flying boats and float seaplanes of any nationality.

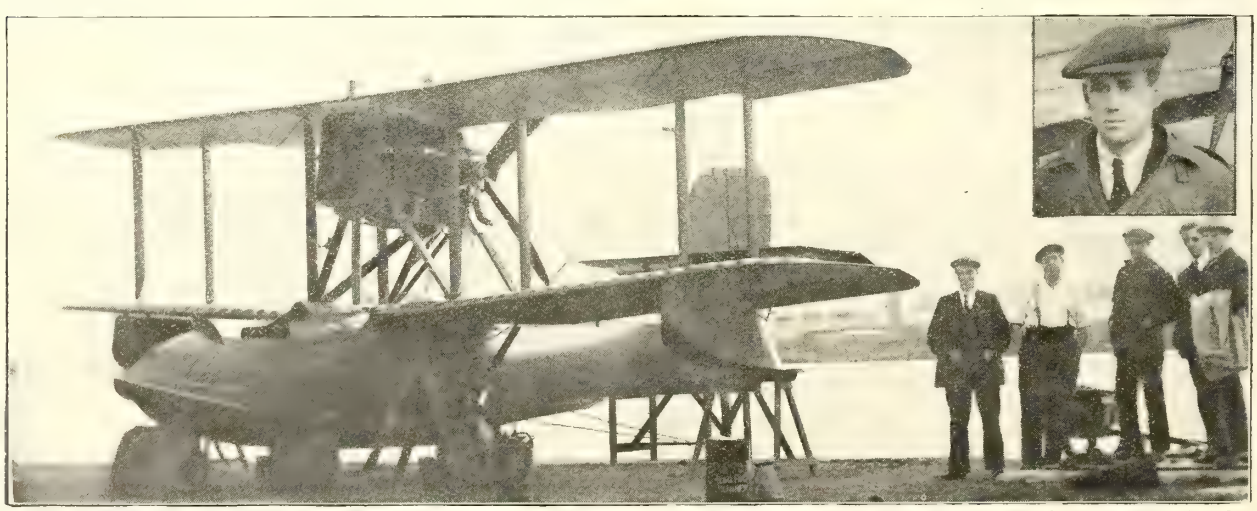
The conditions for this race are different from any other competition, as in addition to fastest time over the course—a distance of roughly 200 nautical miles—the machines have to be tested for seaworthiness, and have to ride at anchor on the water for 6 hours without attention.

The race was instituted in 1913, when France secured the Trophy at Monaco, and in 1914 Mr. Howard Pixton on a Sopwith Seaplane, won the Cup for Great Britain. For the last two years there has been no challenge from Great Britain, and Italy has won it on each occasion, but this year Britain is sending a challenger.

With commendable courage and enterprise two firms have made it possible for Great Britain to be represented in this international race. The Supermarine Aviation Co., Ltd., have constructed a special machine, and Messrs. D. Napier and Son, Ltd., are supplying one of the World-renowned 450 h.p. Napier aero engines for it.

The designing and building of this machine has been carried out with the greatest secrecy. It was first conceived as early as June, 1921, and since that date special work has been carried out on the machine, only two people being cognisant of the real reason for the construction of this flying boat. To give some idea to the extent to which secrecy was maintained, it may be stated that although the machine was designed to take a Napier engine, a 160 h.p. Beardmore engine was fitted to it to enable it to carry out its preliminary trials, so as not to give any indication that it was a racing machine.

It is a very small type flying boat, the span being only 28 ft., and the length over all 25 ft. It has a petrol capacity of 65 gallons, and although it is specially built for racing, it has all the characteristics and strength of a sea-going flying boat, and is capable of going out in all weathers. An



A TRANSPORT MACHINE!—The "Supermarine" racer (Napier engine) which has left for Naples to fetch the Schneider Cup back to England. Mr. H. C. Biard, the pilot, inset.

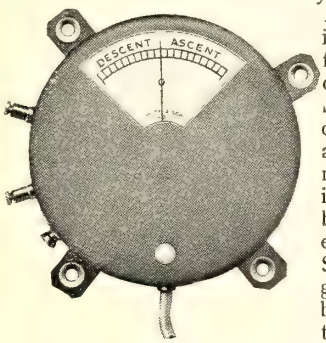
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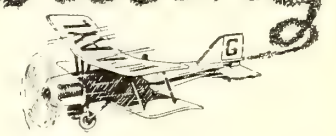
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The machine will be piloted by Mr. H. C. Biard, the Supermarine head pilot, who has probably had more experience with flying-boats than any other pilot. He took his R.Ae.C certificate in 1911, the number of his ticket being 218, and was employed as Instructor at the Ewel. School at Hendon for years before the War. Mr. Biard served with the R.N.A.S. and R.A.F. before joining the Supermarine firm.

All honour is due to the Supermarine Aviation Co. and D. Napier and Son for their patriotic and sporting spirit in making it possible for Great Britain not only to take her place with other countries in an International air event, but in upholding our marine traditions in this, the only International Aero-Marine contest in Europe.

THE STRASBOURG ACCIDENT.

On Sunday last a Spad "Berline" with a Salmson engine crashed on the Paris-Strasbourg route at Saverne in Alsace-Lorraine, when the pilot and four passengers were killed. The names of the killed are reported as follows: Mr. Harry Johnson, Mr. John Robinson, Mr. Joseph Donald Sagar, and Mr. Percy Jack Evans. According to the *Journal*, the pilot of the aeroplane was a Frenchman named Louis.

The Morning Post publishes the following information about the four passengers:—

Mr. Harry Johnson, of Newton Road, Chapeltown, Leeds, was thirty-eight years of age, and, with his father and three brothers, carried on the business of Wm. Johnson (Limited), fruit merchants, of Leeds Market and of Liverpool. Mr. Johnson went to Strasbourg for a holiday, and left Leeds last Wednesday in company with his friends, two of the other English victims, Mr. John Robinson, aged twenty-nine, a partner in the firm of Jesse Robinson and Sons, worsted spinners, Royal Mills, Halifax, and Mr. Joseph Donald Sagar, aged thirty, a director of J. Sagar and Company (Limited), saw-mills engineers, Canal Works, Halifax. The fourth English victim was Mr. Percy Jack Evans, of Birmingham, principal of a motor-car business.

Mr. Sagar is well known to many people in the Aircraft Industry, as his firm specialised on woodworking machinery for aircraft during the war.

It appears that the pilot had trouble with his engine from the start. Instead of turning back and landing he carried on and finally had to attempt a landing in the gorge by the Castle of Hohbarr. There was a strong, gusty wind and he apparently stalled in turning. The whole affair is merely another example of the need for proper inspection of aeroplanes and engines on air-lines and for a high standard of reliability in issuing airworthiness certificates.

FRANCE.

BLÉRIOT AÉRONAUTIQUE.

The famous French aircraft firm Blériot Aéronautique has just been reorganised as a limited liability company, with a capital of 6,000,000 francs.

M. Louis Blériot has been appointed President of the Board of Directors of the new organisation, which otherwise preserves its name, offices and works, staff, etc.

TUNIS—PARIS IN 12 HOURS.

On July 6th, Lieut. Pelletier D'Oisy, accompanied by his mechanic, left Kissar Saïd aerodrome, Tunis, at 05.55 o'clock on a French Military Breguet (300 h.p. Renault), and arrived at Le Bourget at 17.50 o'clock, having covered the distance of 1,700 kilometres in less than 12 hours.

From Kissar Saïd he crossed the Mediterranean from Tunis to Sardinia and from there he followed the west coasts of Sardinia and Corsica to Saint Raphael, where the first stop was made. Owing to bad weather he was forced down 150 kilometres from Paris with an airscrew damaged owing to flying through hail, but was able to continue when the storm cleared.

"IF ESPERANTO COMES."

That very excellent French journal *Les Ailes* asked recently, as a very intelligent enquiry, whether the wireless operators at Le Bourget and Croydon were capable of understanding and speaking either French or English as the occasion demanded.

As the result of this enquiry one of its readers suggests that all pilots and operators should be "Esperantists."

Within the last week a member of the French Chambre de Députés asked that the teaching of Esperanto be forbidden in France, as he declares that this "language" is being used by various Bolshevist agencies as a means of spreading sedition.

This last fact is only mentioned as a warning to any budding Esperantists among our civil pilots who at any moment might be arrested as dangerous persons should they be seen diligently studying their syntax at Le Bourget while waiting for the French "Met." people to arrange the weather.

Apart from that one can confidently expect a good time coming for all wireless enthusiasts, and even if one cannot foresee a boom in aviation there is likely to be a demand for Esperanto dictionaries, cotton wool, and aural specialists.

BEAVERS VERSUS BADGERS.

One is informed that the "game" known as "Beaver" (which originated at Oxford, the place where in contrast to Cambridge so many imbecilities find their origin) whereby bearded men are being driven in hordes to the nearest barbers has now reached aviation circles, where naturally enough it has been greatly improved. An added note of fairness has crept in whereby the bearded men can also enjoy the fun.

In "Aviation Beaver" the game is played on lines similar to those in vogue in ground circles, but instead of allowing a red beaver or a clerical beaver to score three points each and a royal beaver to count game and set, these extra points can only be scored by sighting Mr. Holt Thomas, Mr. Fred May, Air Commodore Samson or M. Lamblin.

It is interesting also to note that the Historical Department under the Air Ministry is now presided over by one possessing a beard. A rule has therefore been passed in the said department to the effect that the sighting of the Chief can only be counted "Beaver" once a day. Furthermore it has been decided that he does not count on the telephone.

It has now been decided that in order to give the bearded men a look in and to increase the pace, anyone sighted wearing a monocle can be hailed with the cry of "Badger," which may be considered, under ordinary circumstances, equal with "Beaver," though the latter takes precedence at public functions.

An Air Vice-Marshal Badger, or a Director of Civil Aviation, or a Badger who is an editor of an aeronautical publication or a member of the Historical section of the Air Ministry, will rank with but after a red or clerical beaver (except at a public function where the same rule applies as to the natural seniority of beavers and badgers in general).

A badger who is a Director of Civil Aviation seated in a B.E.2c or an Ack-W. with a broken undercarriage will count game, set and match, though the winner is liable to have his "A" or "B" licence endorsed. Nevertheless the winner will be considered a sort of "Lenglen" among "Badgers."

The Committee are at present sitting to discuss the question of the proper treatment of people wearing horn-rimmed spectacles, especially as regards members of the fair sex. At present the appellation most favoured is either "Tarzan" or "Tarmac."—G. D.

An Apology to Major W. T. Blake.

On 11th inst. and after our issue of the 12th inst. had gone to press we received the following letter from Major W. T. Blake's Solicitors.

15, Bloomsbury Square,
London, W.C.
July 10th, 1922.

DEAR SIR:—

We are writing this letter on behalf of Major W. T. Blake whose reputation is being injured by the weekly publication in THE AEROPLANE of a series of Articles and Drawings entitled, "The Adventures of Mac, Broome and Wilfred."

These articles constituting a defamatory attack on him and published weekly from May 24th to July 5th inclusive, have only just been brought to his knowledge.

We are aware that anyone has a right to comment on matters of public interest but the comment has to be fair and of honest purpose. The articles you have seen fit to publish, besides being ill-informed, are spiteful and hold Major Blake up to ridicule.

Unless you are prepared to give us your assurance that you will refrain from publishing further defamatory matter and insert an apology in your next issue (in terms to be approved by us) for the injury you have already done our client, we shall doubtless be instructed to issue a writ claiming damages for libel. We are sending a copy of this letter to Messrs. Bonner & Co., the Printers, whom we should join as Defendants if proceedings have to be taken.

Yours faithfully,
WOODCOCK RYLAND & PARKER.

C. G. Grey, Esq.,
THE AEROPLANE,
Empire House,
175, Piccadilly, W.1.

It has been brought to our mind that the series of Drawings and Comments recently published by us under the title of "The Adventures of Mac, Broome and Wilfred" and "Mac Broome and Wilfred" are in some respects offensive and open to construction which is adverse to Major Blake's reputation. It was not our intention or desire when publishing them to publish anything offensive to Major Blake or derogatory to his reputation or to hold him up to ridicule in any way. The undertaking which he and his companions have embarked upon is arduous in the extreme and one to be undertaken only by brave men.

Nobody knows better than we ourselves do the great amount of toil, strain and risk which necessarily attends such an enterprise. We are ready to admit although some of the comments we have made are capable of bearing a different construction that Major Blake's Flight has been undertaken in the best interests of Civil Aviation, and that if successful, as we hope it may be, will give much needed stimulus to that form of Aviation

We have to express our regret to Major Blake for the annoyance caused him by anything we have published. One knows of course that slight mishaps such as he has sustained in the course of his Flight must necessarily retard progress. The fact of these mishaps having been met with so near home and so soon after the start prompted our Commentator to criticisms and suggestions which we now appreciate were not quite fair and this view having been borne in upon us, we unreservedly express our regret for having given them publicity.

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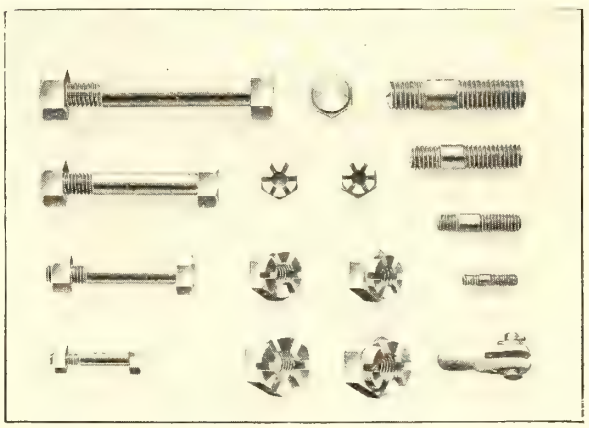
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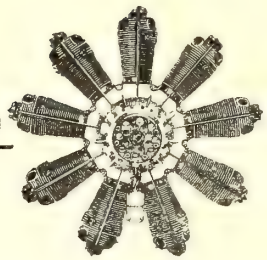
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Vol. XXIII. No. 4. SIXPENCE WEEKLY. [Registered at the G.P.O. as a Newspaper.]

WHAT LANCASHIRE THINKS TO-DAY.



INTEREST AT MANCHESTER.—A Goodly Crowd at Alexandra Park watching the operations of the Manchester Aviation Co.

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ON THE R.A.F. AND THE AIRCRAFT INDUSTRY.

The Foundations.

Last week one endeavoured to prove, despite the intrigues of the Navy and the attacks of the Harmsworth Press, that the foundations of the R.A.F. have been well and truly laid—as Captain Guest stated. The men needed to keep the flying personnel in the air have been acquired and proper housing and workshop accommodation has been provided for them.

If those who scoff at these foundations as being merely so much bricks and mortar were honest in their intentions and were sufficiently intelligent to understand the organisation of a great Service it would be worth while to take them on a tour of these "ground establishments" which they abuse as being the sink down which all the money runs. They would see at Cranwell boy-mechanics and officer-cadets brought to a state of keenness and efficiency unknown in either of the Senior Services. At Halton they would see the great barracks through which the future boy-mechanics will pass and they would see the rising generation of boys and young men at present living in old war-time huts, but at any rate working in good work-shops inspired with the same keenness as those at Cranwell. At Manston they would see more young men in training, also in war-time huts, but just as keen as the rest.

If they needed further convincing they could be taken to Henlow, the great Inland Area Aircraft Depot were all the heavy repair work is done by the R.A.F.'s own mechanics. There they would see the reason for and the result of the training at Cranwell, Halton and Manston. They would see wrecked or worn-out engines rebuilt and turned out in a way which would excite envy even in the original makers of the engines. They would see aeroplanes repaired and overhauled till they are better than new. And they would—if they knew enough—see that it was all done with an efficiency which would put to shame the ordinary British manufacturing firm in any line of business.

At all these ground establishments the officers responsible for the high efficiency and the high moral tone and the keenness of the men and boys are officers who flew before and during the war—many of them entitled to be considered among the pioneers of aviation. They know what the R.A.F. wants and they are seeing that the R.A.F. gets it. They, under the Chief of the Air Staff, are responsible for the foundations which have been so well and truly laid.

In writing of the Services one does not mention the names of individual officers, but everybody in the R.A.F. itself knows who have been responsible for the present high efficiency of the great training establishments and their names will go down in R.A.F. tradition as the men who built up our First Line of Defence just as surely as if they had—as in fact they did in many cases—led the R.A.F. to victory in the air. They, quite as much as the trainers and leaders of the active service squadrons, are the organisers of victory.

Such is the system of the R.A.F. that the same officers who have made and now command the ground establishments will in due course do their tour of service in command of active service forces, while the present active service commanders come back to home work. But the names of those who built up the foundations will always be remembered with admiration as those of men who created order out of chaos.

The Temporary Edifice.

Now that these foundations are so well and truly laid it follows as a natural sequence that the edifice to be erected on those foundations must be considered. Having got the men and trained them they must be equipped in a manner adequate to our First Line of Defence before the edifice can be considered complete. At present the edifice resting on these foundations is of a very temporary type.

It is perfectly true that if a big war broke out to-morrow the Royal Air Force over land and sea would be the best-equipped air force in the World. Our aeroplanes would certainly be war-time junk, but so would those of every other nation, and ours would have the advantage of having been better stored and better cared-for and of being less junky junk (so to speak) when originally built five or six years ago. With this resuscitated scrap-heap we could go to war cheerfully in the knowledge that the R.A.F. could hold its own until the new experimental machines now in hand were put into production and began to come through the shops. For it is quite certain that the experimental aeroplanes and engines which have been produced by the British Aircraft Industry since the War are just as far in front of those of all foreign competitors as were our Service aeroplanes at the end of the War.

In fact our latest experimental types are even further ahead. The all-metal machines which are now taking shape are obviously better than anything on the Continent though we do not make such a song about them. And neither in France nor Germany can they show engines which weight-for-power have stood up to such type-tests as have ours, both water-cooled and air-cooled.

Therefore all we have to do in case of war is to start straight away on the mass-production of our latest aeroplanes and engines, while the R.A.F. holds off the enemy with such five-year-old and six-year-old machines as it still has in store or as are held in stock by the Aircraft Disposal Company.

That is all. Like some methods of furnishing "It is so simple."

Nothing in fact is so simple, always provided one thing. That is the existence of an Aircraft Industry which can (*a*) keep on producing fresh designs, each better than the preceding design, and (*b*) reproduce those designs in quantities when the need arises.

The Girder-Work and the Roof.

The greatest of all our present-day statesmen, Mr. Winston Churchill, and a number of lesser lights have said definitely that the existence of our Air Power depends on a strong and healthy Aircraft Industry. That is to say, while the foundations of the R.A.F. are the great training establishments and men in them, the aircraft manufacturing firms are the steel girders on which the whole structure of the R.A.F. depends.

They may not be beautiful, but without them and unless they are in proper condition the edifice will fall to pieces. Unless the Aircraft Industry is strong and healthy the rest of the structure, the flying schools, the fighting schools, the R.A.F. Staff, the Staff College, the bombing schools, the depots, the photographic schools, the Navy and Army co-operation schools, cannot support the roof, which is the active service squadrons in being—the roof which will have to protect us all in case of enemy attack.

And the plain fact is that unless the Aircraft Industry gets some work to do within the next six weeks—not six months, but six weeks—the Aircraft Industry will go out of business.

The State of the Trade.

The position is briefly this. Up to the present moment every firm of worth in the Aircraft Industry, with perhaps one notable exception, has had work in hand on experimental machines and experimental engines. A few firms still have experimental work to do. A few also have orders for "re-conditioning" some of their old war-time products. But not one single firm has any production orders in hand. There are no production orders in sight. And there are no new experimental orders in sight.

Consequently there is no new design work to keep drawing-office staffs together. And there is no production work to keep the specially trained personnel of the work-shops together and to cover the overhead charges of the factories. Therefore the only thing the aircraft manufacturing firms can do is to shut down and save from the wreck what little money has been left after paying Excess Profits Duties and Corporation Taxes.

If this should be allowed to happen the Royal Air Force will find itself at the end of this year with a splendid organi-

sation, with the finest experimental aeroplanes in the World, and without anybody capable of producing the new aeroplanes which the Chief of the Air Staff has said every pilot in the R.A.F. wants.

The Air Ministry's Economy.

Nobody attaches the slighest blame to the Air Ministry. It has to carry out its work for the current year on a sum equal to the cost of a battleship and a bit. The First Line of Defence has had allotted to it the sum of £10,000,000 odd, with which to build the foundations of a great Service. The Navy, with all its foundations laid, with all its establishments built before the War and expanded with reckless extravagance during the War, has had £70,000,000 merely for current expenses. The R.A.F., so to speak, has had to build its house out of income and not even on the easy-payment system at that. The Navy has had all its income to spend.

The Air Ministry has in fact achieved wonders of economy, and it cannot be expected to do any more this year than it has done. It is for the Government as such, at the behest of the Committee of Imperial Defence, to find enough money to begin at once the re-equipment of the R.A.F. with modern aeroplanes and engines, so that the Aircraft Industry, which is the main strength of the R.A.F., may be saved from extinction.

The Breaking Point.

The Aircraft Industry is in fact very much nearer breaking point than anybody outside the Industry itself can imagine. The chief of one of our eldest and biggest aircraft firms told one a few days ago that unless his firm received some fresh orders by the beginning of August the whole of their workshop personnel would have to go and all their drawing-office staff except three men their chief designers, men of original ideas, who would be retained for a few months longer in case a few orders could be got from foreign countries. If such orders did not come then the works would close down once and for all. And that is the position of a firm which contributed very greatly to the victory of the British Flying Services in the War.

Another important aircraft manufacturer who was present said that he was in precisely the same position. Knowing their own costs and estimating those of other firms they agreed that it would be fair to put the total costs of the design departments of the Aircraft Industry at roughly £150 a week each for some 20 firms, or a total of £3,000 a week or £150,000 a year. And they agreed that this sum was not nearly covered by the price of experimental machines, after paying for workshop labour and materials.

They and others with whom one has discussed the question said that if they had production orders in hand to reduce overhead charges they were quite prepared to stand the losses on experimental machines themselves. But they could not carry on in the present way. They all agreed that if one of the firms at present remaining in the Aircraft Industry went out of it, all the rest would quit, with perhaps the exception of the two or three which have the big armament firms behind them.

A Question of Policy.

Nobody recognises better than one does oneself the excellent work which was done during the War and has been done since the War by the aeroplane sections or subsidiary firms of the big armament concerns, but one is convinced that it would be very bad policy for the R.A.F. to rely entirely on the armament firms and thus put out of the aircraft business the purely aircraft firms and non-armament firms from which so many brilliant new ideas and so many excellent new types of aeroplanes and engines came to the Flying Services during the War.

What the R.A.F. needs is progress in design and in no way can progress be fostered so well as by encouraging that competition which is good for trade. Therefore the firms which are wholly concerned with aircraft should have special consideration.

The big armament and shipbuilding firms have millions of pounds of capital and many subsidiary companies to keep them going through hard times. Some of them have been through grave crises lately, but in no case was there any serious thought of any of them closing down for ever. The case of the aircraft firms is very different. Few of them have ever had any large amount of capital, and the profits on which they might have built up big businesses have either been taken for taxes or spent since the War in praiseworthy efforts to get trade abroad or to produce newer and better aeroplanes. Their money has gone to the wage-earners. Their assets are locked up in bricks and mortar and machinery, so that they cannot earn money on their assets without orders for work for their factories.

On Knowing How.

It is related that a boot-repairer on being reproached with the size of his bill sent it in amended thus :—"To soling Boots, 2s., to knowing how, 8s. 6d." There is a moral to the story.

If the Aircraft Industry shuts down its shops and its drawing offices during the next six months it will take years for it to pull up the progress which will thus be lost, even if the Air Ministry hands out orders lavishly in the next financial year. It is not the doing of the work which is difficult, it is the knowing how. If the men who know how to design and how to calculate stresses and how to make special fittings and how to assemble aero-engines and how to rig aeroplanes and how to test and how to gauge should be dispersed from the aircraft factories it will take years for the factories to get going again.

New men brought in six months or a year hence may know one way of doing a job, but it will not be the way of those strangers who have to work with them. Therefore it is essential to keep the crews of the drawing-offices and workshops together if our present high rate of aeronautic progress is to be maintained and if the R.A.F. is to have the aeroplanes and engines which it ought to have.

Labour can be diluted in case of emergency by men with little experience, but it is vital that the nucleus of skilled men should be accustomed to work together and should possess esprit de corps.

A Matter of Propaganda.

One gathers that the Trade as a Trade, that is to say as a body working through its representative association the Society of British Aircraft Constructors, is unwilling to bring political pressure to bear or to influence even Press propaganda. There seems to be a feeling, which is highly commendable, that it would not be playing the game with the Air Ministry, for the individual members of which the individual members of the Trade have the highest personal regard.

Personally one admires and sympathises with that point of view. But one thinks that something might well be done by way of the Parliamentary Air Committee to influence the Government to pass a reasonable Supplementary Estimate for aircraft construction. Naturally, any such action by the S.B.A.C. would be open to the charge that the Trade was only anxious about lining its own pockets. Nevertheless, if the case were put in a capable manner it could be made clear—as one has tried to make it clear in this article—that the efficiency and the efficacy of the R.A.F. and the future of our Air Power depends on the Trade. Mr. Churchill would be the first member of the Cabinet to admit the fact and to argue with the Cabinet in favour of it, as Captain Guest, not being a member of the Cabinet, cannot do so.

Ready Money.

There should be no real difficulty about finding the money. It has been stated that the famous Burney Airship Scheme has been turned down by the Committee of Imperial Defence, and very rightly so, one thinks, for it is more than doubtful whether airships would be of any value in naval war. Airships would certainly be valuable for civil air transport, but one believes firmly that they will always be too vulnerable for war service against aeroplanes. When trade revives and civil aviation flourishes on its merits—based on a strong and healthy Aircraft Industry—airships may also be revived, but we certainly cannot afford them out of our Service Votes, though perhaps for commercial reasons the Government may decide to finance them.

Meantime, it will be remembered that the Admiralty was quite prepared to give up the price of a light cruiser to finance the Burney Scheme. Also it will be remembered that the Admiralty has lately been inspiring attacks against the Air Ministry because, as alleged, the Air Council has not provided the Navy with sufficient aircraft to operate with the Fleet.

It would seem quite simple therefore that the Cabinet should arrange for the price of that light cruiser (a matter of £3,000,000 or more) to be handed over to the Air Ministry to be spent exclusively on deck-flying aeroplanes, torpedo-planes, float-seaplanes, amphibians, and big flying boats strictly for Fleet co-operation. The Admiralty has admitted that it *can* do without the cruiser and it has cried aloud that it *cannot* do without Naval aircraft. Therefore it would seem that there can be no difficulty about making the necessary financial adjustment.

Active Service Needs.

Then the Air Council could spend the whole of its very own Vote for new material on machines and engines for the active service squadrons in India, Iraq and Africa, where one gathers new machines are sadly needed. One hears of unused five-year-old aeroplanes which have been two or three years in store in the East falling to pieces at their first landing by a skilful pilot and even of their disintegrating of their own accord when being taken out of their packing cases.

New machines built of the best modern material are needed by the active service squadrons far worse than they are by the Navy. A year ago or more machines in India began falling to pieces in the air, as any R.A.F. officer from the East can verify. To-day these machines are still not replaced and yet the Navy, which is not on active service, is squealing for new toys of a kind which it has always treated with contempt. So let the Navy pay for its new toys.

The Trade's Attitude.

So far as the Trade is concerned in the scrap between the Admiralty and the Air Council it is remaining honourably neutral despite the obvious fact that if the Admiralty did manage to get back its own Naval Air Service it would be the best possible thing for the Trade. It would then be able to play off the Technical Department of the Admiralty against its opposite member at the Air Ministry, on the good old principle that what was turned down by the fools in one Service would automatically be accepted by the wise men in the other—just to show how wise they were.

The Trade must keep in business so it does not care officially whether the Navy has its own Air Service or not, though individual members of the Trade who had to do with the Admiralty—as distinct from members of the Air Department, Admiralty—during the War pray that they may never have to do so again. Still orders are orders, and while the Services are scrapping the Trade is starving, and if the Admiralty did order aeroplanes those orders would keep the Trade alive just as well as Air Ministry orders.

It would seem therefore that the Air Ministry would do quite well in its own interests, if only as an acknowledgment of the honourable way in which it has been treated by the Trade, to make something of a special effort, even in the midst of all its trouble with Naval intrigue, to extract from the Government a sum to be expended during the next eight months sufficient to keep the Trade alive, so that when the 1923-24 Estimates are introduced next year and an adequate aircraft-building programme is put forward there may still be an Aircraft Trade capable of building those aircraft.—**C. G. G.**

AIRCRAFT IN PARLIAMENT

THE IRISH FREE STATE.

On July 13th, in reply to a question by MR. E. HARMSWORTH MR. CHURCHILL said that it is not desirable at the present moment to state how many aeroplanes have been supplied to the Provisional Government of Southern Ireland and he did not know whether they would be returned or not. MR. CHURCHILL added that he did not see why the Irish Free State should not have an air force if they wished for one and that nothing could be less of a menace to us than such an air force. If they choose to use the machines they have now in their possession and pay us for them, he could see no objection to their doing so.

THE COMMITTEE OF IMPERIAL DEFENCE.

CAPTAIN VISCOUNT CURZON asked THE PRIME MINISTER why the deputation from the Parliamentary Air Committee to be received by the Committee of Imperial Defence will not include any representative of the Navy. MAJOR-GENERAL SIR J. DAVIDSON asked the same question with regard to the representation of the Army. THE PRIME MINISTER replied that the most convenient method would appear to be for the Parliamentary Navy Committee in the one case and the Army Committee in the other, to arrange that matter with the Parliamentary Air Committee. VISCOUNT CURZON said that the Air Committee refused to allow the Navy representatives to accompany them. THE PRIME MINISTER was sorry that there should be any difference of opinion. VISCOUNT CURZON could not see why the deputation should be limited to four persons but THE PRIME MINISTER thought it would be a mistake to have more.

CAPTAIN W. BENN asked for an additional Supply day in which to debate the affairs of this very important Service. THE PRIME MINISTER agreed.

TECHNICAL OFFICERS AT THE AIR MINISTRY.

In reply to a written question by CAPTAIN BOWYER THE SECRETARY OF STATE FOR AIR said that in accordance with a Treasury decision to review the salaries of temporary staff notice of termination was issued to the Air Ministry staff concerned in March. Those to whom these notices were sent were informed that new appointments on revised rates of pay would be offered to them as from June 5th but owing to the large number of cases involved, the fact that revision was made on an individual basis, to the difficulties which arose in the re-assessment of the salaries, and to the prolonged efforts which were made to obtain the best possible terms for the staff concerned, it was not until June 2nd that it was found possible to dispatch the letters stating the new rates of pay. The fact that the Whitsun holidays intervened resulted in some of the officers not seeing their letters until the morning of June 6th. Meanwhile for reasons of economy a reduction of staff had become necessary. This had to be effected from among the temporary staff whose salaries were being reviewed, and affected 15 persons.

TURNING DOWN THE AIRSHIPS.

On July 17th, THE PRIME MINISTER informed CAPT. VISCOUNT CURZON and MR. L'ESTRANGE MALONE that the Committee of Imperial Defence had decided that in view of the need for economy no money should be expended on the development of airships, either for commercial purposes or for imperial communications. A special sub-committee was being appointed with Mr. Amery as Chairman to study Commander Burnie's scheme.

THE STATE OF THE TRADE

VISCOUNT CURZON asked THE PRIME MINISTER whether his attention had been drawn to the very grave position of the Aircraft Industry, which was in immediate danger of complete collapse, and to the facts that the development of research was at a standstill so that it would not be possible to provide for expansion in an emergency and that the Industry would take years to recover, and that the R.A.F. did not provide the Navy with machines and personnel required for the present establishment. THE PRIME MINISTER said that he was alive to the position of the Aircraft Industry, but that Lord Curzon's statements seemed to be exaggerated. The whole question was being considered by the Committee of Imperial Defence.

TRANSFER OF RESEARCH OFFICERS.

On July 18th, THE SECRETARY OF STATE FOR AIR replying to VISCOUNT EDNAM said that it was proposed to transfer some of the work of the Directorate of Research from London to Farnborough, but the extent of the transfer had not been settled. Quarters were available at Farnborough for unmarried staff but that married quarters for civilian staff were not considered practicable. The longest possible notice would be given to those about to be transferred.

BUILDINGS AND AIRCRAFT.

Replying to SIR WILLIAM DAVIDSON, CAPTAIN GUEST said that £1,622,000 is taken in this year's Estimate for expenditure on buildings and purchase of lands, half of this being for services overseas. About £100,000 is being devoted to urgent requirements for the replacement of accommodation which was becoming wholly inadequate. £1,517,600 is taken for the purchase and reconditioning of aircraft, including experimental work.

THE NAVY'S AEROPLANES.

Replying to VISCOUNT CURZON, CAPTAIN GUEST said that since May 15th last only two aeroplanes had been written off during deck landing practice, and that damaged machines were at once replaced from the supply held in immediate reserve. The following machines were in active commission and first-line reserve for naval work:—Reconnaissance 18 ship planes, 18 float planes, 18 flying boats: Spotting 18 ship planes: Torpedo-carrying 18 ship planes: Fighting 6 ship fighters: Training 9 float seaplanes, 12 flying boats: Development 6 flying boats, 4 torpedo ship planes.

In addition, two reserve squadrons were used for other forms of naval co-operation. Behind these was another reserve of 200 aeroplanes without pilots for naval units. The actual total, exclusive of the two reserve squadrons, was 350 machines available for the Navy.

Further CAPTAIN GUEST said that fleet pilots are, as far as possible, retained for a period of four years. Though in practice, owing to their being required for special appointments, some officers did not serve the full period. One pilot had recently been required for the Staff College and another for experimental work. Further, CAPTAIN GUEST said that the Air Ministry and the Admiralty are in complete agreement as to the design and development of torpedoes for use from aeroplanes.

Replying to a friendly question from Colonel Moore-Brabazon, Captain Guest explained why there are 200 squadron leaders in the R.A.F. for 30 squadrons, the explanation being in substance that given in THE AEROPLANE recently.

The Navy Estimates.

In the debate on the Navy Estimates CAPTAIN VISCOUNT CURZON, R.N.V.R., delivered a long attack on the Air Ministry and the R.A.F. directed mainly towards re-creating the R.N.A.S. He said that the Admiralty had built five aircraft carriers for operations with the Fleet and could not get machines to put into them. He complained that no report was published of the working of the wing of the R.A.F. operating with the Navy. He reiterated his usual statements that the Navy is not prepared to repel air attack, and complained that observers did not get enough training.

For a change he complained against the Admiralty that there was only one aircraft carrier with the Fleet, and asked what had happened to the *Eagle* and the *Hermes* and why they had been so long under construction.

He also disclosed the fact that the Fleet was going to carry out a progressive gunnery programme accompanied by aircraft, but that the ammunition allocated for the year ran out before the programme was completed, so the programme had to be postponed. When the Fleet began the experiments again the following year they found that the pilots and observers had been drafted to another quarter of the Globe. For this he seemed to blame the Air Ministry for moving the pilots rather than the Admiralty for not providing the ammunition.

He also disclosed that our aircraft to-day are using 14-inch torpedoes with a maximum range of 1,000 yards as against the 21-inch torpedo used by the Navy. He said that the Air Ministry had started a torpedo school of their own at Portsmouth, within sight of the largest and best torpedo school in the World.

He then branched off onto the fantastic idea that "quite the most efficient aircraft carrier that can be conceived is an airship". He pictured such a ship carrying a load of aeroplanes which could be dropped at any moment. Such an airship, he said, would provide against a dawn attack on aircraft carriers by aeroplanes already in the air. He said nothing about a dawn attack on the airship itself, which would be much more easily seen by early morning aircraft than would the Fleet.

For lack of co-operation between the Navy and the R.A.F. he blamed the spirit which prevails at the Air Ministry, and said that we should not do any good until we had a thorough reconstruction of the Air Ministry.

COL. MOORE-BRABAZON, replying, referred to the attitude of pontifical infallibility adopted by Viscount Curzon as earning him a reputation already earned by his noble kinsman in another place. He exposed the folly of demanding more and more aircraft for the Navy when there was no money available.

As to the shortage of air personnel with the Navy he referred to the fact that the Admiralty was asked to find 400 officers for the air who were to go back to the Navy after training and that the Admiralty had refused to lend them, and wound up by saying that if the Noble Lord would press for more money to be spent on the Air Force he might get a smaller Fleet but he would get it a good deal better equipped with aircraft.

MR. PRETYMAN said that after many years' experience at the Admiralty he had learned to trust the naval view.

MR. G. LAMBERT said that between the experts of the Air Department and the Admiralty apparently we were not getting enough value for our money and that it was wasteful and extravagant to spend money on capital ships unless you had sufficient aircraft to protect them. It struck him that the brotherly co-operation between the Admiralty and the Air Force was something like the brotherliness between Cain and Abel.

VICE-ADMIRAL SIR REGINALD HALL complained that on the aircraft carriers the Air Force personnel were only concerned with flying and

took no part in the routine duties of the ship. Referring to the R.N.A.S. during the war he said that he thought he was right in saying that the Director of the Air Service had the loyal co-operation of naval officers endeavouring to make it efficient. He advocated that young officers and men who were being discharged from the Navy should be taken on by the Air Force.

Rear-Admiral Adair also advocated that the Navy should have its own separate Air Force.

Lieut.-Cmdr. Kenworthy said that if naval aviators were to be naval officers first and air officers second and if their air duties were to be second to the naval duties then Heaven help the Air Service and Heaven help the Navy. He said that if we could build hyper-super Dreadnoughts against the United States and find money for an Air Service to meet the 200 air squadrons of our French allies, if we could control the Middle East with aircraft and supply Army aircraft for the Army and aircraft for outlying stations some of which were totally useless under the changed strategic conditions, we could sleep comfortably in our beds, wave the Union Jack, sing patriotic songs and throw out our chests with other people in the World. Unfortunately we could not afford these things and must do the best we could with the limited amount of money available. That being so he did not consider that we could afford the two new capital ships.

Mr. Amery replying said that there was nothing in recent experiments to justify the idea that the capital ship is not capable of defending itself but that in an ever-increasing degree the Navy must consider the importance of the air factor. He said that there was not the slightest idea of challenging the position laid down in March as to the existence of a separate and independent Air Force. The only question was that of the integrity of naval control for the air units actually working with the fighting Fleet. That question was under discussion by the Committee of Imperial Defence and was also being considered in a friendly spirit by the Chief of the Air Staff and the First Sea Lord with the help and advice of Mr. Churchill.

As to aircraft carriers he said the *Argus* was with the Atlantic Fleet and the *Pegasus* was with the Mediterranean Fleet. He hoped that the *Hermes* and the *Eagle* would be ready before the end of 1923. When the *Eagle* and *Hermes* were put into commission we should require larger provision of aircraft for their full equipment than we had available to-day. At present we had the pilots and aircraft for the two carriers that are actually in service.

THE KING'S CUP.

The most likely days for the great competition for the Gold Cup, graciously presented by H.M. The King, are Friday and Saturday, the 8th and 9th of September. It was hoped that it could have been held on the 9th and 10th, but as we live in a country where the Prime Minister has to deny officially that he plays the wicked game of golf on the Sabbath, it seems that the chances of holding a race on that day are remote indeed.

The course will be a circuit in Great Britain, starting and finishing at Croydon, with compulsory stops at Birmingham, Newcastle, Edinburgh, Glasgow, Manchester and Bristol.

The Duke of Sutherland will enter a D.H.9, to be flown by Mr. A. F. Muir, Sir Samuel Instone will enter a commercial machine the pilot of which will probably be Mr. Barnard. Mr. Handley Page hopes to enter a W.8 or W.8b and Col. Frank Searle will put in a D.H.34 (Napier).

Other entries will be Mr. F. T. Courtney on a Siddeley "Siskin," Messrs "Jimmy" James and Tait-Cox on the Gloucestershire Aircraft Company's "Bamel" and "Sprawk," Mr. A. S. Butler on a D.H.37 and Mr. Alan Cobham on a D.H.9.

The Bristol Aeroplane Company will most likely enter a 10-seater with a Bristol "Jupiter" engine and possibly the racer, and Boulton and Paul will put in two P.9s. Col. Frank McClean will enter a Sopwith "Gnu," and Mr. Raynham a modified "Tinsyde."

Up to date there is no word of an entry from Lord Waring, who recently expressed in this paper his continued interest in aviation.

There is a rumour of a Royal entry by a sporting Prince. If this should materialise it would give a splendid lead to various wealthy people who talk about aviation but do nothing for it. Eventually it would lead to flying being recognised as a "Society" sport, much to the benefit of the Aircraft Industry.

ADMIRALTY CAMOUFLAGE.

The following was issued by the Admiralty on July 21st :—

"In view of the unauthorised and inaccurate reports which have appeared in the Press with regard to the torpedo aeroplane attack on the Atlantic Fleet which took place off the Isle of Wight on July 7th, in the presence of the King, the Admiralty consider it desirable to issue the following brief statement of the facts :

"1. The exercise was in no sense novel, and was designed as a spectacle rather than as a critical experiment. Similar exercises have been carried out on several occasions during the past three years, and the results on July 7th only confirmed previous experience.

"2. In order to afford practice to the torpedo aeroplanes the Fleet approached to within a few miles of the aircraft base in broad daylight at slow speed, on a pre-arranged day and at an hour signalled in advance to the aircraft. There was, therefore, no surprise attack, and the conditions were essentially unwarlike and unreal.

"3. Moreover, as is unavoidable in all peace exercises, the Fleet offered an unresisting target to the aircraft, whose attack was undisturbed by any counter-offensive action, whether by the interference of Fleet aircraft, gunfire from the light cruiser and destroyer screens, or heavy, medium, and anti-aircraft gunfire—combined with splash barrages—from ships in the battle line.

"4. The aircraft were thus allowed to develop to the full their offensive, whilst the Fleet was debarred from defending itself in any way. In spite of these favourable conditions the number of hits obtained on the battle line was small and of minor tactical importance.

"5. Throughout the operation the pilots of the attacking aircraft showed skill and dash in the handling of their machines, but, as already indicated, the conditions were so unreal that no practical lessons affecting the security of the Fleet can properly be deduced from these exercises."

[The truth is that the R.A.F. were only instructed to make a display and not to adopt war tactics, in which case the aircraft would not have been seen by anybody. The whole incident reminds one of the story of the inquisitive railway passenger who asked a fellow-traveller what he had in a basket in the carriage. The owner said it was a mongoose which he was taking to catch pink snakes which a sick friend of his was seeing. The inquisitive one replied, "But those aren't real snakes!" And the owner answered,—"No! And this ain't a real mongoose."—C. G. G.]

THE AERIAL DERBY.

So far the only definite entries for the Aerial Derby, which takes place at Croydon on August 7th, are those of Mr. A. S. Butler, on a D.H.37 (Rolls-Royce "Falcon"), and Mr. Bert Hinkler, on an Avro "Baby" (35 h.p. Green).

The majority of the entries are not made until the day that entries are to close. The Gloucestershire Aircraft Company will enter the "Bamel" (Napier) and the "Sprawk" (B.R.2) to be flown by Messrs. "Jimmy" James and Tait-Cox. The Bristol people will enter the "secret" monoplane with the "Jupiter" boosted to 500 h.p. which will probably be flown by Mr. Uwins, and also probably the 100 h.p. Lucifer monoplane. One has heard it rumoured that the latter may be flown by Mr. Larry Carter.

It is almost certain that there will be several French competitors and it is hoped that M. Sadi-Lecointe will come over on the Nieuport "Sesquiplane."

It is not yet known whether Mr. Courtney will have the Siddeley "Siskin" (350 h.p. "Jaguar") ready in time.

Mr. F. P. Raynham will fly a "Tinsyde" with a 210 h.p. "Viper" engine and the Aircraft Disposal Company hope to enter two or three machines.

It has been decided to run the race in a clockwise direction and the slower machines will be off the mark about 13.30 hours so that at the advertised time of the race, 15.00 hours, these machines will be passing over on their first circuit and the "star" machines will be just starting up.

There will also be a 16 mile handicap race open to all machines and called the "August Open Handicap."

The race for the Air League Challenge Cup, which was last won by a Kenley team at the First Croydon race meeting, will be held, Kenley having been challenged by another R.A.F. station. The machines used will be S.E.5as loaned by the Aircraft Disposal Company and the Club Avros.

There will be exhibition flying by well-known pilots and it is hoped that there will be Crazy Flying by an exponent of the art from the R.A.F.—G. D.

THE INSTONE EXTENSION SCHEME.

Various reports have appeared and rumours have been current that the Instone Air Line are contemplating substituting a London-Cologne service for the present London-Paris route.

While it is perfectly true that they do contemplate operating a service to Cologne they have no intention whatever of abandoning the Paris route.

When they first applied for the subsidy to operate a London to Brussels route they did so with the idea that this was to be the first stage of a transcontinental route. The Directors of the Instone Air Line consider that the aeroplane as a method of transport is chiefly of advantage over other methods where great distances are concerned.

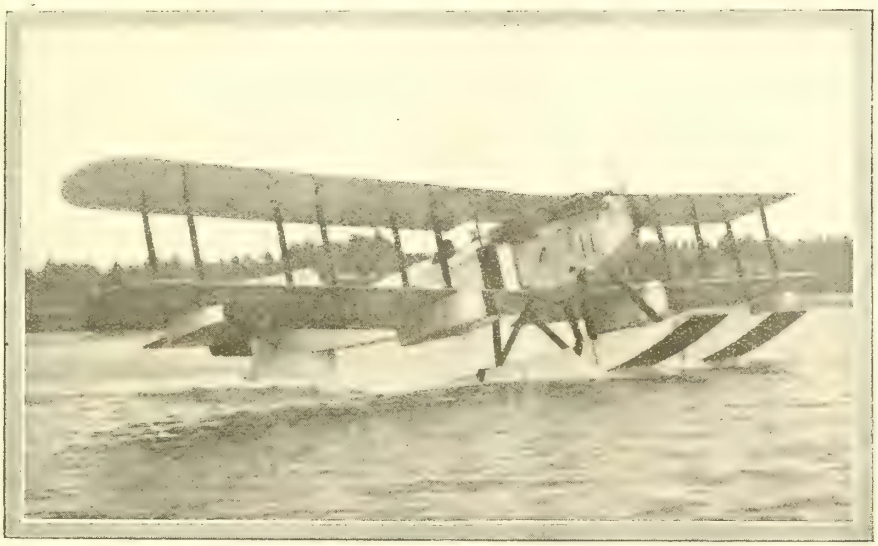
Major S. T. L. Greer, who was at one time C.A.T.O. at Croydon, and who is now Brussels manager for the I.A.L., has lately been in Cologne making preliminary investigations.

Captain Alfred Instone informs one that a French line are shortly to operate between Paris and Cologne and they already have services to Prague.

The I.A.L. will doubtless in due course extend on to Prague from Cologne and it can readily be seen from the map whither the Instone Line is aiming finally. Trade is following the flag by the direct route.

The London-Paris route will, however, be looked after adequately and it will bear very much the same relation to the Instone Transcontinental Air Line as does the "Southern Belle" to the L.B. & S.C. Railway.

ACROSS THE SOUTH ATLANTIC



FAIREY SERIES III LOAD CARRYING SEAPLANE
fitted with a 360 h.p. Eagle VIII Rolls-Royce Engine.

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Speed with full load, **83** knots. Landing speed with full load, **43** knots.

THIS MACHINE WAS SUPPLIED UNDER AN ABSOLUTE GUARANTEE OF PERFORMANCE.

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Fairey Series III Load Carrying Aircraft can be supplied fitted for all Commercial Purposes—Passenger and Mail Carrying, Etc.—and are fitted with Sea, Land or Amphibian Chassis.

ALL MACHINES ARE FITTED WITH FAIREY PATENT VARIABLE CAMBER WINGS GIVING HIGH PERFORMANCE AND LOW LANDING SPEED.

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R.A.F. INTELLIGENCE.

The Defence of the Empire.

On July 21st, deputations of the Parliamentary Committees which profess to represent respectively the Navy, the Army, and the Air Force, were received by the Committee of Imperial Defence, which with the Prime Minister in the Chair was composed as follows :—Mr. Chamberlain, the Earl of Balfour, Sir Robert Horne (Chancellor of the Exchequer), Mr. Churchill (Colonial Secretary), Viscount Peel (Secretary of State for India), Lord Lee of Fareham (First Lord of the Admiralty), Captain the Right Hon. F. E. Guest (Minister for Air), Admiral of the Fleet Lord Beatty (First Sea Lord), General the Earl of Cavan (Chief of the Imperial General Staff), Air Chief Marshal Sir H. M. Trenchard, Vice-Admiral Sir Roger Keyes, Sir Eyre Crowe, and Air Commodore J. M. Steel, with Lieutenant-Colonel Sir M. P. A. Hankey (Secretary) and Lieutenant-Colonel Sir J. R. Chancellor (Principal Assistant Secretary).

The official statement of the proceedings, according to the *Morning Post*, is as follows :—

"The Committee of Imperial Defence met this morning at the House of Commons, under the chairmanship of the Prime Minister, and received in the first place a deputation of the Parliamentary Air Committee, consisting of Sir W. Joynson-Hicks, Bart., Major-General J. E. B. Seely, Sir A. Shirley Benn, and Rear-Admiral M. F. Sueter.

"After the withdrawal of the representatives of the Parliamentary Air Committee, a joint deputation of the Parliamentary Navy and Army Committees was introduced. This deputation consisted of Viscount Curzon, Rear-Admiral Sir Reginald Hall (representing the Navy Committee), and Major-General Sir John Davidson, and Major R. Glyn (representing the Army Committee).

"The deputation submitted statements calling the attention of the Committee to the many grave problems arising from the development of aerial warfare.

"The Prime Minister thanked the deputations for the clear and valuable statements they had made, and the Committee adjourned to an early date next week, when the statements submitted will be further considered."

With a Committee of Imperial Defence which includes so many truly wise men and able officers as that set forth above, it is possible to be quite comfortable in one's mind concerning the defence of the British Empire and to remain unperturbed by alarmist newspapers and politicians.—C. G. G.

The Territorial Air Force.

A good deal has appeared in the general newspapers during the past few days about the Territorial Air Force that is to be. It would appear that the Territorial scheme, which is ingeniously made to appear something new in the Press, is in fact precisely the scheme described in outline by the Chief of the Air Staff a year or two ago. At any rate no new facts or factors are described.

One rather gathers that whether the Territorial Air Force comes into being this year or not depends entirely on whether the Cabinet passes the general scheme for the strengthening and consolidation of the whole Royal Air Force, which has been before it for some considerable time. If the scheme goes through, as one hopes and believes it will, then the five Territorial Squadrons, based on five important cities, will be formed as soon as possible afterwards.

Meantime those who are keen on joining the R.A.F. Territorial Force will do well to wait till an official announcement is made as to the passing of the whole R.A.F. scheme before worrying already over-worked officials with requests for immediate information.

The Territorial Force is quite distinct from the R.A.F. Reserve, which has existed since 1919. Officers leaving the R.A.F. in August will belong to the Reserve automatically and cannot become Territorials.

Life Assurance for R.A.F. Officers.

It appears from an article in *The Insurance Record* of July 12th that serving officers of the R.A.F. have been circularised recently by a Mr. H. S. Lees-Smith with reference to the subject of life assurance. This gentleman, who from his letters appears to claim that he is acting as the agent of one of best-known British Insurance Companies, puts forward certain extremely attractive proposals to such officers, and suggests that it is possible by taking out a further policy with another Insurance concern to cover flying risks as well as ordinary risks.

The Insurance Record hints very strongly that the proposals so made are in certain respects irregular, and that the suggested double insurance, covering both flying and ordinary risks, is in fact not by any means so complete a protection as the circular letters might lead the uninitiated to believe. In particular it is pointed out that, as the policy covering Aviation risks is in the form of a yearly contract, which the insuring company may refuse to renew, an officer who accepts the suggested scheme may find that if he is ordered on active service his flying policy will not be renewed, and he will then be in possession only of a policy which does not cover flying risks at all.

A non-expert opinion upon such a complex subject as life assurance is of very little value but in view of the criticisms made of this particular proposal by *The Insurance Record* it would certainly seem that it is advisable for any officer of the R.A.F. who is considering its acceptance to consult an independent authority as to its real value in his particular case. Probably his own bank manager or the Insurance branch of his particular firm of Air Force agents would willingly afford him their guidance in this matter.

An Accountancy Case.

At Gosport recently, F/Lt. Robert Denly Ward James, 39, was charged with having, as a public officer, embezzled £720 at Fort Grange, between January 3rd and May 5th last.

Mr. H. J. Parham, for the Director of Public Prosecutions, said that the accused was appointed Accountant Officer at the Royal Air Force base at Fort Grange in December last. As his accounts were found unsatisfactory, inspectors of accounts were sent down by the Air Ministry on May 4th last. The accused, who was on leave, did not reply to a telegram of recall, and it was discovered that he had gone to Canada on board the steamship *Elysium*. The police communicated by wireless with the ship, and the accused was arrested in Canada.

James, who pleaded "Not Guilty," was committed for trial at the Hampshire Assizes, bail being allowed in £1,000. He was previously in the Army was one of those who came into the R.A.F. with flying rank through the Stores Accounting scheme at Ruislip to do what is in reality a job for an intelligent N.C.O. clerk.

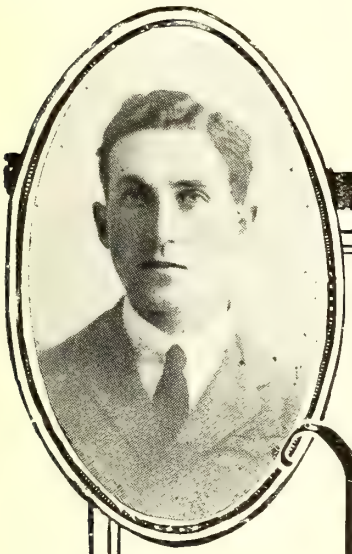
The R.A.F. in Hong-Kong.

The second Annual Re-Union Dinner of ex-members of the R.A.F. in the Colony of Hong-Kong took place recently, sixteen officers being present. The senior officer present was the late Lieut.-Cmdr. Gregory, R.N., of *H.M.S. Tamar*. Others included Capt. Kynaston, The King's Regt.; Mr. May, of the Asiatic Petroleum Co.; F/Lt. Gordon, M.C., D.S.C.; Lieut. Moore, M.C., The King's Regt.; Mr. H. W. Allan, of the China Mining Metal Co.; Mr. A. P. Lamplugh, of the Union Insurance Society of Canton, Ltd.; Mr. N. Mabey, of the Hong-Kong Shanghai Bank; Dr. Lyon-Brown; Lieut. R. Blacking, of the Mercantile Bank of India; Mr. R. C. B. Hockey, of the Brunner Mond Co.; Lieut. Wallis, R.A.; Mr. Caldwell, of the Hong-Kong Shanghai Bank; and Mr. Church, of the Hong-Kong Whampas Dock Co.

(Continued on page 71.)



THE R.A.F. CHAMPIONSHIP : Lady Trenchard presenting the King's Cup to S/Ldr. Burge, Captain of the Cranwell Team. The Secretary of the Meeting, F/O. Adams, is seen in the background.



Famous Pilots · and the · NAPIER 450 H.P AERO ENGINE

Capt. H. W. Chattaway joined the R.F.C. in the early days of the war and served with distinction.

Since leaving the Service he has been engaged on the London-Paris Air Service as pilot, for whom he has flown all types of aero engines and machines. It is significant that after this varied experience he should have preference for the 450 h.p. Napier Aero Engine.

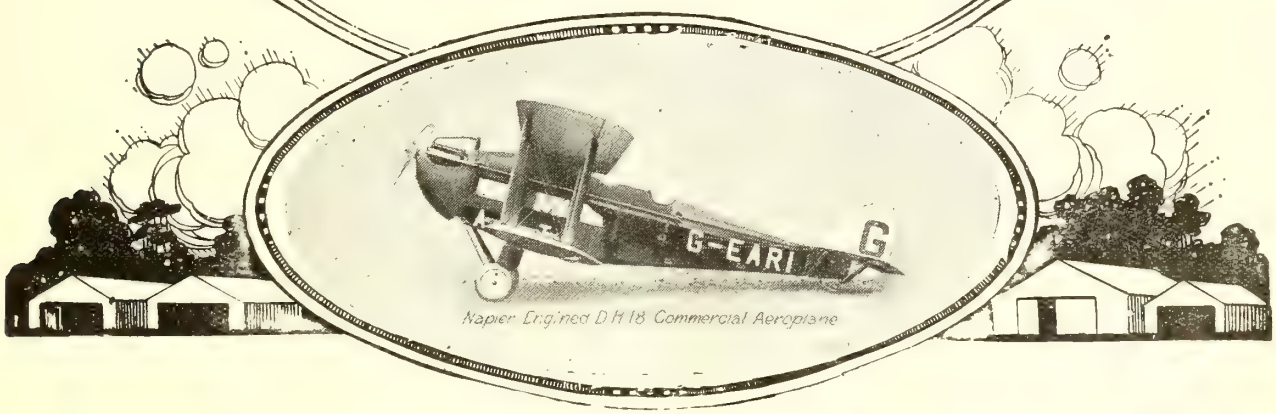
Capt. H. W. CHATTAWAY, A.F.C.

After 5 years' experience of most types of aero engines, I can safely say there is no engine I prefer to the Napier Lion.

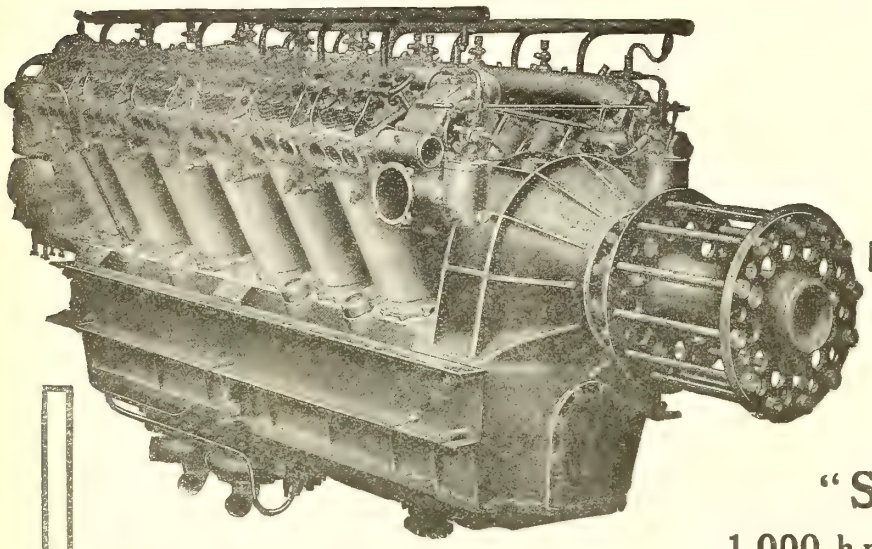
From a pilot's point of view it is ideal, as owing to its reliability and sweet running the strain of constant flying is reduced to a minimum.

H. W. Chattaway

D. NAPIER & SON, LTD.,
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Napier Engined D.H.18 Commercial Aeroplane



"SIKH"
1,000 h.p. 12 cylinder.

The following list of Engines, designed and manufactured by the Company, is unequalled in its range. All these engines are of proved efficiency and extreme reliability, and can be recommended with confidence for aviation purposes of all kinds.

"DYAK" 100 h.p 6-cylinder		"SIKH" 1000 h.p. 12-cylinder	
"ARAB 2" (Direct Drive) 200 h.p. 8-cylinder		"MAORI" 275 h.p. 12-cylinder	
"MANITOU" .. 300 h.p. 12-cylinder		"COSSACK" .. 350 h.p. 12-cylinder	
"MATABELE" .. 400 h.p. 12-cylinder		"SIKH" 500 h.p. 6-cylinder	

We shall be pleased to supply specifications, installation diagrams, prices, and any other information upon request.

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" - - *Northern Service & Repair Works*, 288/294, Eccles New Rd., Weaste.
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AERONAUTICAL ENGINEERING

SUPPLEMENT TO "THE AEROPLANE"

INCORPORATING AIRCRAFT ENGINEERING AERODYNAMICS, AIRCRAFT FINANCE AND COMMERCIAL AERONAUTICS AND MATTERS PERTAINING TO THE AERONAUTICAL ENGINEER AND THE AIRCRAFT TRADER.

THE WEEKLY COMMENTARY.

The touring machine now being built by the De Havilland Aircraft Co. for Mr. Alan Butler is described below. Although designed specially for Mr. Butler's private use, the machine may be regarded as of a type useful for many civilian purposes.

Combining, as it does, a very useful all-round performance, a moderate landing speed, and a very considerable useful load capacity it should form a very useful demonstration of how very much better results can be obtained with a moderate-sized modern machine than with converted war-time types of generally similar capacity.

The construction of this machine should prove to be a very useful piece of propaganda, and one hopes that Mr. Butler and the De Havilland Company will ultimately profit thereby. There is quite a large scope of real usefulness for a really good machine of this character, and there is no doubt that the development of Civil Aviation has heretofore been retarded by the absence of such machines.

A very interesting note records the work of Mr. H. E. Broadsmith in the investigations on the qualities of Australian grown timbers for aircraft purposes. The results achieved indicate that Australian timbers of very high quality for this purpose do exist. The difficulties of supply which are recorded are of a nature which can almost certainly be overcome if the demand for such timber increases, and it is quite possible that in the near future alternatives for the timber now in general use for aircraft construction may be of very considerable value.

THE D.H.37.

There is at present being erected at the De Havilland Aircraft Company's works at Stag Lane a very interesting machine—known as the D.H.37—which has been built for the use of Mr. A. S. Butler, who, as the owner-pilot of a Bristol "Tourer," did very much excellent flying during 1921. Mr. Butler has, as is well known, joined the board of the De Havilland Co., and the firm has produced this machine in the light of Mr. Butler's experience of owner-piloting, for long-distance, high-speed touring purposes.

The machine is a three-seater tractor biplane, fitted with a Rolls-Royce "Falcon" engine, and embodies the result of the designer's unexampled experience of the design of economical aircraft.

THE FUSELAGE.

The fuselage is of the type now standard in D.H. machines—built on spruce longerons and struts, covered throughout with three-ply, and entirely free from wire bracing except in the bottom bays under the engine—which are covered by removable cowling. The engine-mounting arrangements present no striking novelties, the steel tube bearers of the engine are carried on brackets from the side members of the fuselage, which in turn are braced to the bottom cross members by steel tubes. The removable nose used on larger commercial machines has not been adopted in this machine.

Immediately behind the engine the usual fire-proof bulkhead is fitted. The bay following this bulkhead is available either for leg room for the forward passenger—or if his seat is removed—for extra petrol tanks or for luggage stowage. This bay comes below the upper wing centre section, and is followed by a somewhat longer bay which serves as the front cockpit. This cockpit is large enough to contain two seats in tandem. The pilot's cockpit is immediately behind this, and behind that again the top fairing of the fuselage is hinged to allow the insertion of luggage into the succeeding bay. Beyond this luggage space the fuselage tapers away to a vertical knife edge at the stern.

WINGS.

The wing structure is of the single bay type, with wings of equal span, fairly heavily staggered. The upper centre section is carried on a pair of slightly splayed-out N struts, and contains a large gravity petrol tank. The lower wings attach directly to the body, and have an appreciable dihedral angle. The upper wings have no dihedral. Ailerons are fitted to the lower wing only.

The wing section employed is of the same high lift section as that used on the D.H.34. The under surface is flat, and the upper surface is fairly steeply curved from the nose, the maximum camber being fairly well forward. The wings are built on the usual two spars, which are channel-section spruce, built up of horizontal laminations. The ribs are also entirely of spruce, and of very light and simple structure. The spruce capping strips are glued and nailed to vertical former strips, so that the top and bottom members form T-section girders. These two members are connected at intervals by vertical spruce members in pairs, one on each side of the shank of the T.

The leading edge is of hollowed C-section spruce, and the upper surface from the leading edge to front spar is three-ply covered.

AILERONS.

The ailerons on the bottom wing are of very considerable length—about ⅔ of the half span each—and as each is operated through only one control connection, a very stiff front aileron spar is necessary, in order to prevent twisting under load. This spar is of very light and simple structure—it consists of a spruce channel section such as is usual for this purpose, reinforced by a half tube of three-ply at the rear. The three-ply reinforcement is firmly glued and screwed to the spar, and is supported at frequent intervals by D-form spruce formers let into the channeling of the spar itself.

UNDERCARRIAGE.

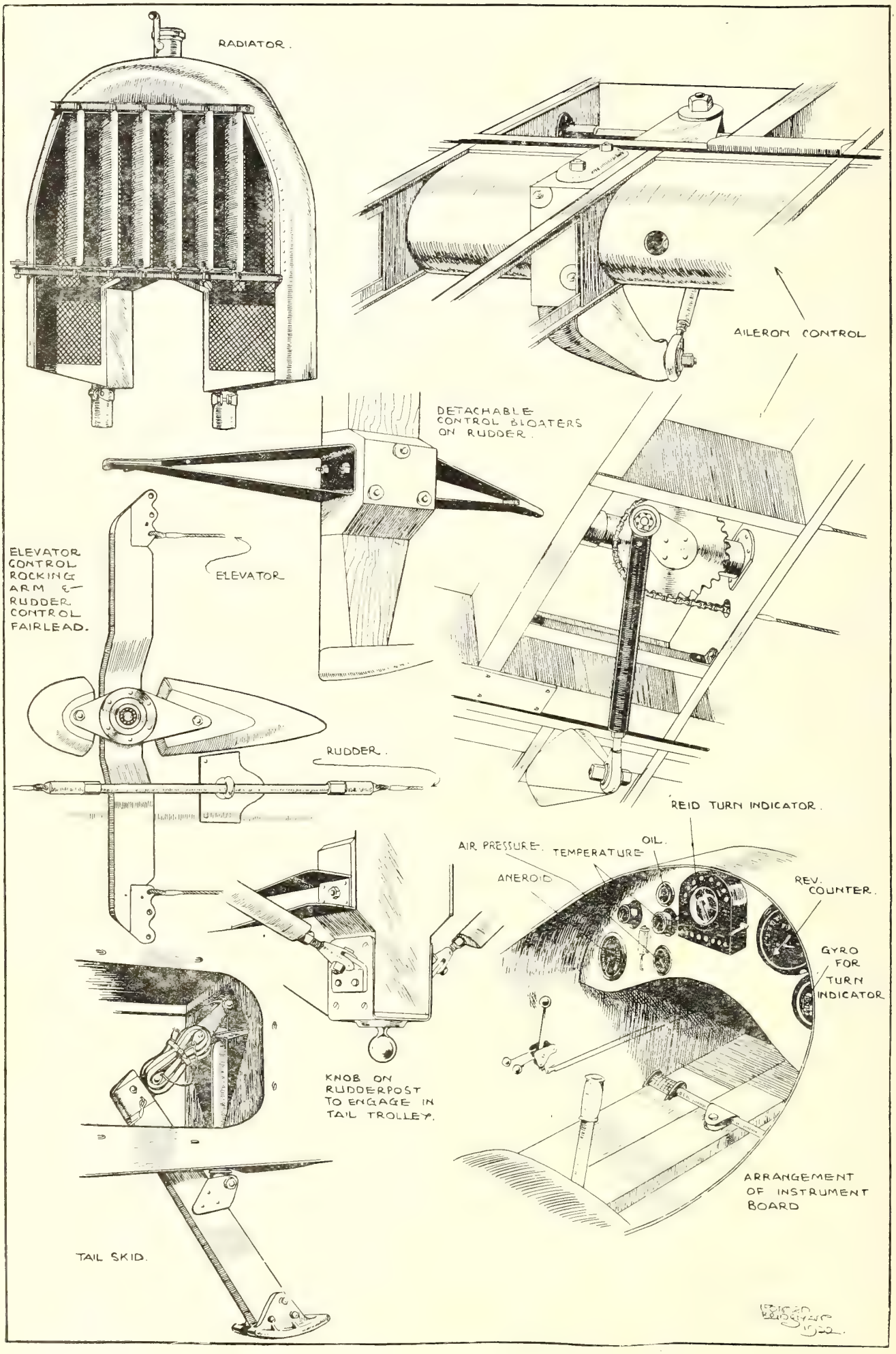
The undercarriage is of the type which has proved so successful on the D.H.34, consisting of two vees, each with one combined rubber and oleo-pneumatic shock absorber. The front member of each vee is hinged to the lower fuselage rail below the engine. The rear member is telescopic, with rubbers carried on external brackets projecting fore and aft, and containing the oil and air chamber within. The axle is fixed to the vees. The height of the undercarriage is such as to give a very large angle of incidence to the wings when at rest. This gives the machine a quick pull up and allows the machine to get off at the lowest possible speed.

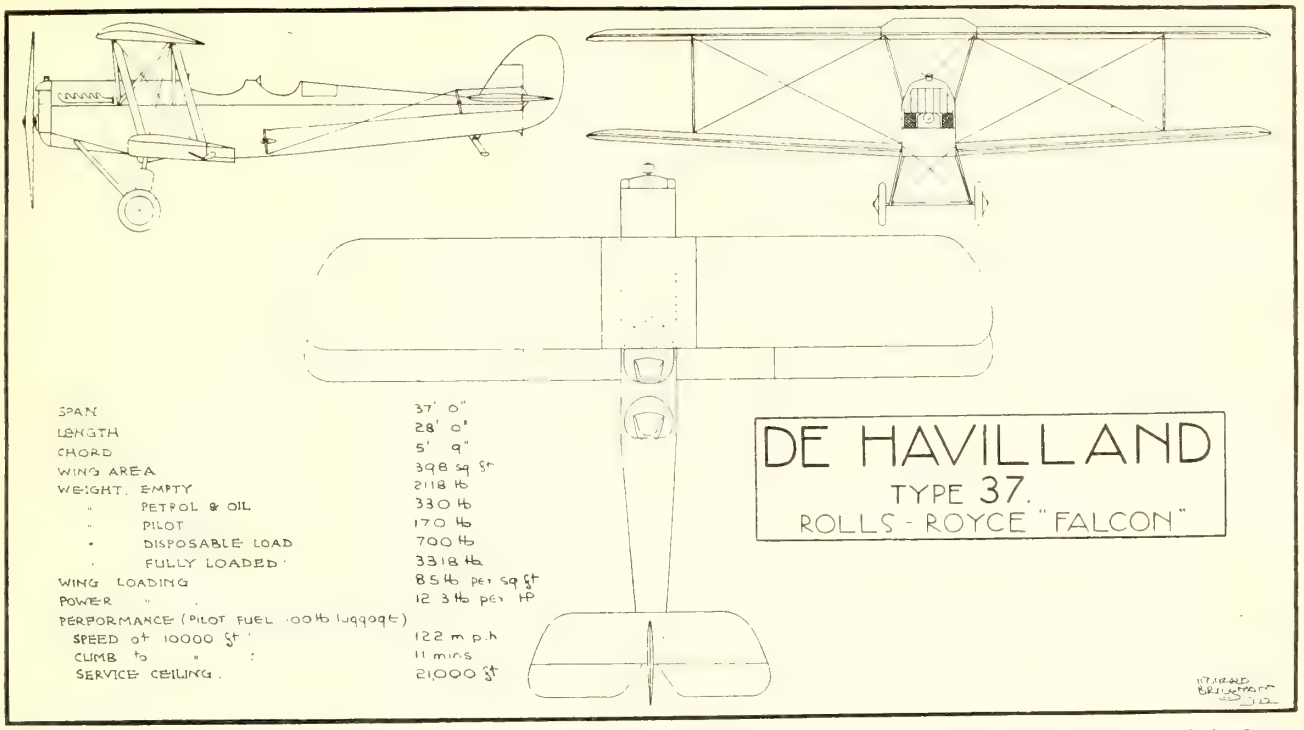
A rubber-sprung ash tail skid, fitted with very solid removable shoes, completes the landing gear.

The tail unit calls for little description as it closely resembles that of the D.H.9. The tail plane is braced by two streamline tubes from the fuselage. The fin and rudder post are unbraced. The rudder is balanced.

THE CONTROLS.

Dual controls are fitted to the two rear seats. The pilot's seat is the rearmost, and is fitted with a completely equipped instrument board. The joystick in the second seat is removable at will. The two joysticks and rudder bars with the


RADIATOR.
AILERON CONTROL
DETACHABLE CONTROL BLOATERS ON RUDDER.
ELEVATOR CONTROL ROCKING ARM & RUDDER CONTROL FAIRLEAD.
ELEVATOR
RUDDER.
REID TURN INDICATOR.
AIR PRESSURE.
TEMPERATURE
OIL.
ANEROID
REV. COUNTER.
GYRO FOR TURN INDICATOR
KNOB ON RUDDERPOST TO ENGAGE IN TAIL TROLLEY.
ARRANGEMENT OF INSTRUMENT BOARD
TAIL SKID.



rocking shafts and coupling rods are carried in a three-ply trough built into the bottom of the fuselage, and can be removed as one unit for inspection or adjustment. Ball bearings are fitted to these controls throughout.

Lateral movements of the control levers are transmitted through a fore and aft shaft which terminates in a vertical lever somewhat ahead of the lower rear spar. Straight cables run from this lever through the lower wings and connect at each side to a length of roller chain running round a sprocket wheel. A crank-pin on this wheel operates a push-and-pull rod coupled to the aileron lever. The angular position of the crank-pin when the aileron is in the neutral position is so chosen as to give a differential movement to the aileron, the one which is pulled down moving through a smaller angle than that which is pulled up. This has the effect of partly balancing the ailerons, and also greatly reduces the risk of precipitating a spin when the ailerons are used at near stalling speed.

Fore and aft movement of the control sticks are transmitted to a transverse shaft in the rear cockpit. This shaft projects through the fuselage sides. Crossed cables couple the ends of levers on this shaft to similar levers on a second transverse shaft mounted just ahead of the tail plane leading edge, and further cables couple these levers (which are commonly known as "bloaters," owing to their fish-like shape) to the levers on the elevators.

The rear rudder bar is fitted with extensions passing out of the fuselage sides. One straight cable runs aft on each side to the rudder.

In no case does any cable pass round a corner—all leads are straight.

The tail plane is not adjustable in flight, but a spring adjustment is fitted to the control column by which the load on the column can be taken off the pilot's hand at any flying speed.

INSTRUMENTS.

The instrument equipment is very complete. In addition to the normal instruments, a Vickers-Reid turn indicator is fitted. Wireless is not being fitted at the moment, but all metal fittings throughout the machine are bonded together by copper wire or strips, so that wireless may be fitted at any future date without the necessity for stripping the whole machine. Also all ignition leads are of the metal-braided type which is necessary to prevent magneto noises from interfering with wireless reception.

POWER PLANT.

The engine installation is simple and straightforward. Two large oil tanks are fitted below the engine bearer tubes, one on each side of the sump. Petrol is gravity fed to the carburetters from the centre-section tank. Extra tanks can be fitted in the front cockpit when necessary, and petrol is then pump fed to the gravity tank.

The radiator, of the usual honeycomb type, straddles the reduction gear of the engine. The header tank and the side frames of the radiator are formed to the lines of the engine cowling, thus greatly simplifying the shape of the removable portions of that always troublesome feature. The engine is fitted with long exhaust pipes which pass right back to behind the third seat.

AUSTRALIAN TIMBERS FOR AIRCRAFT.

A very interesting investigation has been carried out by Mr. H. E. Broadsmith, of the Australian Aircraft and Engineering Co., into the qualities of native Australian timbers as materials for aircraft construction. This work has been attended by numerous difficulties, but seems now to have reached a point where it may safely be said that satisfactory native Australian timbers exist which can replace the standard timbers used in Europe and America for aircraft construction.

The majority of Australian timbers are classed as hardwoods, and of these nearly two-thirds are of the Eucalyptus family. Although classified as hardwoods, however, these timbers vary enormously in weight and physical qualities, and timbers suitable for almost any purposes are to be found among them. The problem of picking such suitable timbers proved to be an extremely difficult one.

The investigation started with a reference to a textbook by Mr. R. T. Baker, entitled "The Hardwoods of Australia, and their Economics." From this a list of all timbers weighing less than 50 lbs per cubic foot, for which test figures were shown, was compiled.

Specimens of these timbers were next examined in the Museum of the Sydney Technical College to ascertain the nature of the break and the quality of the timber. Then steps were taken to ascertain which of these timbers were obtainable commercially and whether they were plentiful or otherwise. This, coupled with questions of the straightness of grain, uniformity of strength, etc., led to the reduction of the list of promising timber to six species namely: A Stringybark (Eucalyptus Oblique L'Her), Giant Gum (E. Reganans F.V.M.), Sydney Blue Gum (E. Saligna), Mountain Ash (E. Gigantia), White Ash (E. Fraxinoides) and Long Jack (Flindersia Oxleyana).

The Forestry Commission of New South Wales was asked for samples of these timbers, which were not available immediately, and in the meantime several timber merchants in Sydney were asked to supply samples of Mountain Ash and White Ash—both timbers alleged to be in use in the furniture and cabinet-making trades.

This request revealed the main difficulty to be encountered in the supply of the required timbers—the indiscriminate use of the same common name for quite distinct species in the timber trade.

At least seven distinct species are sold under the name of "Mountain Ash," and any or all of these seven timbers may also be called "White Ash" or "Long Jack," and except by accident it is quite impossible to obtain the exact species required except by personal examination of timber yards and the selection of the desired timber from among stacks of varying species lumped together under one common name. As these particular confounded species vary in weight from 38 to 56 lbs. per cubic ft., and have moduli of elasticity of from 1,500,000 to 3,000,000, this question of selection is a real difficulty.

It was sought to overcome this difficulty by visiting the

localities in which the timbers were grown—but even the Forestry Commission was very vague as to where particular species were to be found—and the attempt to trace timbers to their source and thus ensure supplies of definite woods was an extremely laborious and often disappointing job. However, a certain amount of success has attended Mr. Broadsmith's efforts, and as a result his company have received an order to build six Avro 504K training machines for the Australian Government which will be constructed from native timbers. The timbers to be used are Mountain Ash, White Ash, Cudgerie, Blue Fig and Queensland Maple.

Of these, Mountain Ash (E. Gigantia) is a timber of ash-like qualities, weighing 40-45 lbs. per cub. ft., with a modulus of elasticity ranging from 1.8×10^6 to 2.3×10^6 for sound specimens, and a failing load in compression of 7,500 to 8,000 lbs. per sq. in.

White Ash is a timber of very similar qualities—unfortunately less easy to obtain, and of similar weight and apparently greater and more uniform strength. The value of E. runs up to 2.4×10^6 and the failing load in compression varies from 7,600 to 9,600 lbs. per sq. in.

Cudgerie is a free-working, straight and close-grained wood—fairly plentiful. Average weight 45 lbs. per cub. ft. E. 1.5 to 2.6×10^6. Compression strength 7,500-8,000 lbs. per sq. in.

These three timbers apparently are to be used for the main structural members. The timbers are heavier than spruce and ash which they would replace—against that the greater strength will allow some reduction in section.

Blue Fig is a light timber, soft, straight-grained and free-working. Average weight 29 lbs. per cub. ft. E. 1.0 to 1.5×10^6, compressive stress 5,000-6,000 lbs. per sq. in. Is to be used only for lightly stressed members—fairlings, light former-ribs, etc.

Queensland Maple (Flindersia Chatawiana) is a timber suitable for airscrew construction and is not very abundant. It works well and presents no special difficulties in regard to glueing. The weight averages 36 lbs. per cub. ft., E. is 1.3 to 1.6×10^6, failing in compression at 5,000 to 5,300 lbs. per sq. in. Some twenty or more airscrews built of this wood have been in service in Northern Queensland for several months and have given satisfactory results.

The weight of the machines built with these timbers will not differ by more than 1 per cent. from that of machines with Oregon pine spars and struts, and the strength will be appreciably greater.

The estimates of strength and weight have been based on tests to destruction of actual components—struts, ribs, etc.—built of the native timbers, and these tests show very appreciably improved strength as compared with components of equal weight taken from Standard British-built Avros.

THE DIETRICH SPORTING TWO-SEATER.

This machine is another of the rapidly growing number of moderate powered German two-seaters of the sporting type. It is built by the Flugzeugbau Richard Dietrich G.m.b.h. of Mannheim.

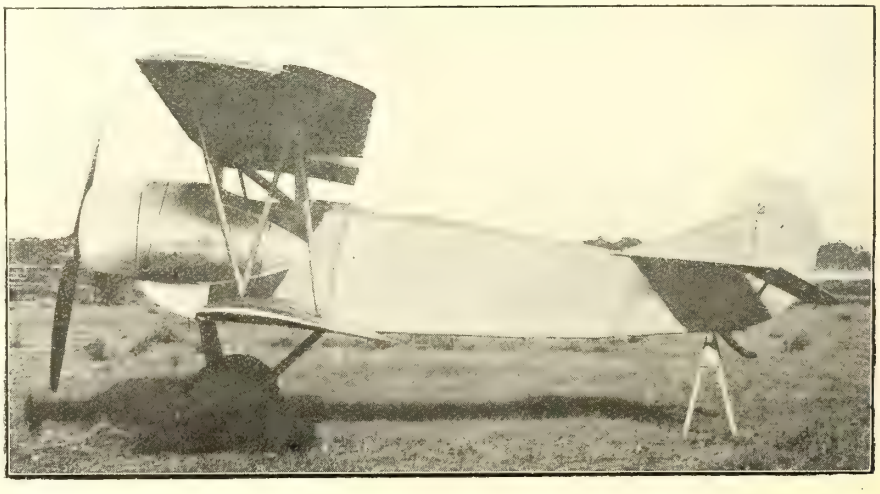
The general appearance of the machine reminds one strongly of the original Fokker cantilever biplanes, but in this case flying and landing wires are fitted. The fuselage, undercarriage and tail are of steel tube construction, the wings of wood. Spars are of box section, reinforced by solid filling at points of high stress, ribs of three-ply, and the covering of fabric. The top plane is in one piece, secured to the cabane by four bolts, and to the lower wing by N struts.

The machine is fitted with a 70 h.p. Gnôme engine, and the first example was completed and tested on June 7th.

The main dimensions, etc., are as follows :—

Specification of the Dietrich D.P.1.

Span, top	6.2 m.
Span, bottom	5.2 m.
Length over all	5.8 m.
Height over all	2.4 m.
Chord, top	1.35 m.
Chord, bottom	1.2 m.
Wing area	14 sq. m.
Weight, empty	350 kg.
Weight, loaded	550 kg.
Load per sq. m.	39.3 kg.
Wt. per H.P.	8 kg.
Min. load factor	8
Speed (max.)	140 k.p.h.
Climb to 1,000 m.	7 min.
Ceiling	3,400 m.
Landing speed	60 k.p.h.
Pull-up run	60-70 metres
Get off	40 m.



THE INTERNATIONAL COMMISSION ON AIR NAVIGATION.

The International Commission on Air Navigation assembled at the Quai d'Orsay in Paris on July 11th.

M. Poincaré, the French Premier, welcomed the International Air Commissioners and said that they were called upon to perform work of eminent importance. Certain rules had been embodied in the Convention, but the necessity for amendments had become apparent. The Commission was empowered, under the terms of the Convention, to deal with airworthiness of aircraft, the application of wireless telegraphy to aeronautics, meteorological, medical and legal questions and the provision of international aeronautical maps.

The Commission would also have to decide the application of the rules whenever differences arose between States.

Lord Gorell, replying for Great Britian, said that M. Poincaré's presence was a tribute to the importance of the first meeting of the Commission.

M. Flandin (France) was elected President for the first Session and Capt. Albert Roter (France) was elected Permanent Secretary. M. Flandin, in taking the Chair, said that it was remarkable that those who drew up the Treaty of Versailles had foreseen the need of air navigation, for the rules were drawn from intuition rather than experience.

The Commission then examined its constitution. It was decided to establish the Secretariat in Paris, but the meetings of the Commission, three times a year, will not necessarily be held in France. London may possibly be the next place chosen.

Six sub-committees were appointed to consider respectively technical details with regard to materials for aircraft construction and the certificate of airworthiness; wireless telegraphy; meteorology; medical certificates; aeronautical maps; and legal questions, including Customs regulations.

A NEW CONSTRUCTIONAL FIRM.

An aeroplane construction concern is being formed in Belgium under the name of "Aviator," the chief engineer of which is M. Droesbeke. Two types of aircraft are actually under construction, one a low-powered sporting machine and the other a high speed monoplane, which is to be entered for the Coupe Deutsch de la Meurthe.

MORTGAGES, CHARGES & SATISFACTIONS

Arnott and Harrison, Ltd.—Satisfaction in full on June 2nd, 1922, of debentures authorised August 31st, 1921, securing £5,000

Navarro-Wellesley Aviation, Ltd.—Satisfaction to the extent of £1,450, on February 21st, 1922, of mortgage dated September 13th, 1920, securing £10,000.

NEW COMPANY.

Air Ads., Ltd., was registered as a private company on July 18th, with a nominal capital of £1,000 in £1 shares. The objects are :—To carry on the business of advertisement contractors, and especially (but not exclusively) to display advertisements in the sky by means of writing with smoke, powder, or other substance, or liquid emitted from aeroplanes or other aerial craft, etc. The subscribers (each with one share) are :—A. Horner, Talbot House, 98, St. Martin's Lane, W.C.2, solicitor. Gwendoline M. Verdi, 31, Addison Mansions, W.14, private secretary.

The subscribers are to appoint the first directors. Remuneration of chairman, £10; of other directors, £5 each per annum.

Solicitors :—A. Horner, Talbot House, 98, St. Martin's Lane, W.C.2.

No notice of situation of Registered Office has been filed up to the time of incorporation. The file No. is 183,186.

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Victoria 6900.

Telegrams :
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Aeroplanes for Commercial and Military Use.

Flying Boats for Commercial and Naval Use.

The Vickers "Viking" was classified FIRST in the following competitions at the INTERNATIONAL SEAPLANE COMPETITIONS at ANTWERP, July, 1920.

1. **Shortest time in "unsticking" from water.**
2. **Fastest time over a given circuit.**
3. **Climb to 1,000 metres.**
4. **Altitude with full load**

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Brief Specification:
Viking Mark IV

6 Passengers and baggage or 1,360 lbs. Freight.

RANGE: 340 miles.
SPAN: 50′ 0″
HEIGHT: 15′ 1″
LENGTH: 35′ 0″

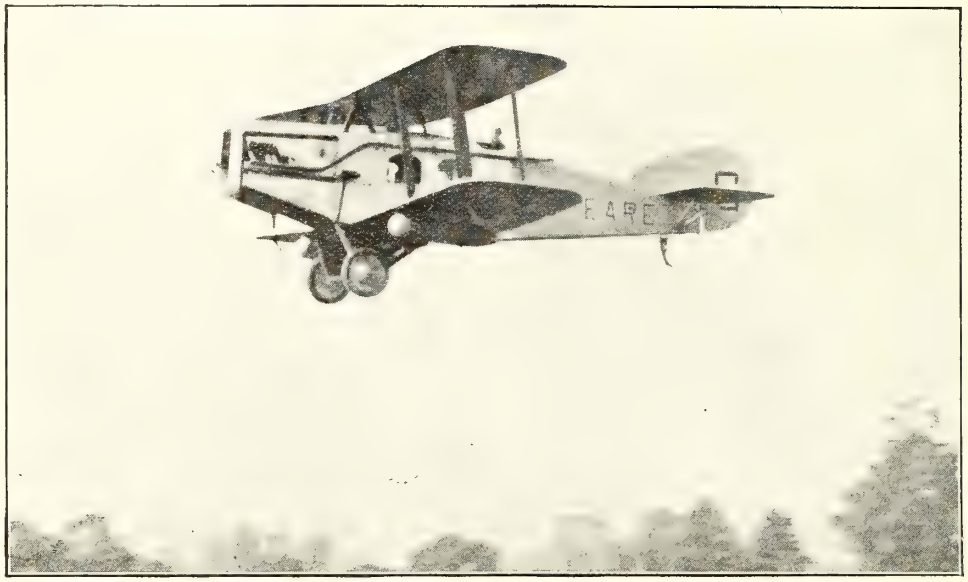
The Vickers "Viking" was the winner of the FIRST prize of £10,000 for the Amphibian Class of Aircraft entered for the BRITISH AIR MINISTRY COMPETITION, September, 1920.

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FRESH AIR

LONDON



PARIS

Mr. A. Baldwin Raper, M.P., writing in the Daily Mail, pays a tribute to the WESTLAND LIMOUSINE, he says:—

"On June 7th I flew from London to Paris in a WESTLAND aeroplane together with my wife, who—apart from being a bad sailor—had only previously been up in the air for a few brief "joy rides." We had the window full open all the way, and although we passed through about fifteen minutes of quite rough weather over the French coast, my wife felt absolutely fit both during the flight and after arrival at Le Bourget."

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(Continued from page 62.)

R.A.F. SPORTS AND PASTIMES.

The Bisley Meeting.

The following past and present members of the Flying Services were among the King's Hundred at Bisley :—

Badge and £20 :—Lieut. J. Elgood (late R.F.C.), 229 points.

Badge and £10 :—Lieut. C. Medland (late R.A.F.), 229 points.

Badge and £5 :—F/Lt. J. L. Pearce, 224 points; Lieut. J. A. Smith (late R.A.F.), 221 points.

Badge and £3 :—Wing/Cmdr. A. Whitlock, 210 points.

Lieut. J. A. Smith (late R.A.F.) won the Bronze Cross in the St. George's Vase and won the Wantage snapshooting competition.

The R.A.F. Athletic Championships.

The competitions for the R.A.F. Athletic Championships were held at the Inland Area Aircraft Depot at Henlow on July 20th. The enclosure, track, stands and so forth were built last year during the coal strike entirely by R.A.F personnel and form one of the best sports grounds one has seen. The events were run off with all that precision for which R.A.F. organisation is becoming famous, and the general arrangements reflected the greatest credit on the Committee and its Secretary, F/O. Adams. Competition between the various units was of the keenest and the competitors, officers and men together, showed splendid sporting spirit. Each unit was all out to win, but there was never the slightest sign of ill feeling, and when S/Ldr. Burge went up to receive the King's Cup for the Cranwell team the rival units cheered to the echo.

Lady Trenchard presented the prizes with distinguished grace and made every prize-winner feel what a pleasure it was to her to see the R.A.F. doing so well. The weather was perfect. The only untoward circumstance was the absence of Air Chief Marshal Sir Hugh Trenchard, who was detained in London by matters of State, by which no doubt the R.A.F will benefit in due course. In his absence Air Vice-Marshal J. F. A. Higgins, A.O.C. Inland Area, made the necessary speeches as briefly and effectively as possible, and helped materially the general feeling of good sportsmanship about the proceedings.

The partisanship of the units reached its climax in the final of the Tug-of-War when the splendidly trained and coached team from Gosport beat a perfectly wonderful team of "under eighteen" boys from Cranwell. The irony of fate decreed that Air Commodore Longcroft, A.O.C. Cranwell, had to judge the Tug-of-War. A very senior officer remarked during the tug that he quite expected the A.O.C. Cranwell to burst into tears if his boys were beaten, and though he did not the aforesaid senior officer declared that he distinctly heard a break in the Air-Commodore's voice when he had to say "Up" for the second time. Of course the boys could not be expected to beat Gosport, but they put up a very fine performance, and they showed the kind of stuff that is making the R.A.F. the finest service in the world.

The times in all the events were remarkably good, and the display of "athletism" all round demonstrated that the R.A.F. will soon be able to take on the Senior Services at anything and beat them. Unfortunately up to the time of going to press on Tuesday the final results have not been received from Henlow, so it is impossible to publish any figures.—C. G. G.

The R.A.F. (India) Championship Meeting.

The Championship Sports Meeting of the R.A.F. in India was held at Ambala from the 6th to the 14th March, 1922 This was the first meeting of the kind held in India, but it is now hoped to make it an annual event. From start to finish it was an unqualified success, despite several difficulties that had to be overcome : firstly, the immense distances which the unit teams had to cover (varying from 400 to 700 miles)



AT HENLOW.—Above, the start for the 3 Mile Championship, won by F/O Irwin (No. 17). Middle, Cpl. Blythe winning the 100 Yards Championship. Below, Gosport winning the Tug-of-War.

(Photographs by "Sport and General.")

made the travelling expenses very heavy; this was overcome by pooling all expenses, so that units, whether they were stationed at Karachi or Ambala, bore the cost equally. Secondly, the outlay to bring full teams for hockey, football, boxing, and running would have been prohibitive, so it was decided to limit the numbers from each unit to twenty-four, excluding officers. The Frontier Squadrons were particularly unlucky, as some inconsiderate tribesmen in Waziristan elected to make nuisances of themselves during the week, with the result that the greater part of the flying personnel of the squadons at Kohat, Peshawar, and Risalpur were unable to come down to Ambala.

The support received from outside sources was particularly gratifying. H.H. the Maharaja of Patiala presented two wonderful challenge cups, and with some of his staff attended the finals of the boxing on the evening of the 12th. It was particularly kind of the Supply and Transport Corps, Ambala, to give a cup for one of the running events, and of the Army Physical Training School to lend sports gear.

Results :—Football (Winners), Aircraft Depot, Karachi (Runners Up), No. 28 Squadron, Kohat; Hockey (W.), No. 27 Squadron, Risalpur, (R.U.), Aircraft Depot; Boxing (W.), H.Q., R.A.F. in India, Ambala, (R.U.), No. 28 Squadron, Kohat; Sports (W.), No. 27 Squadron, Risalpur, (R.U.), Aircraft Depot.

Champion Squadron, No. 27 Squadron, Risalpur.

Boxing Results :—Officers.—Bantam, S/Ldr. Hargrave (H.Q.); Feathers, F/O. O'Brien Saint (5 Sqdn.); Light-Weights, F/Lt. Ridley (H.Q.); Welter, F/Lt. Dunn (5 Sqdn.); Heavy-Weight, F/O. Durward (H.Q.).

F/Lt. Ridley showed a good style with a very straight left : he turned his blows very nicely and beat F/O. Knocker (28 Sqdn.) fairly comfortable on points. The Heavies put in a lot of work and exchanged some very hard blows : although F/O. Durward's style was not quite as good as F/Lt Leather's (20 Sqdn.); he got in some good hard punching and gained the verdict on points.

Other Ranks :—Heavy-Weights, AC.1. Allen (Aircraft Depot); Middle-Weights, Cpl. Taylor (Aircraft Park); Welter-Weights, AC. Cohan (A.D.); Light-Weights, AC. McAvoy (R.A.F. School); Feather-Weights, AC. Wolfeson (28 Sqdn.); Bantams, AC. Bouch (H.Q.).

The Heavies were a poor class, but the Middles were much better; Cpl. Taylor shows great promise, but does not carry the fighting to his opponent enough. In the Welters Cohan stood by himself, but had his opponent bustled him a bit and not allowed him to have his own way in the fight, there might have been a different tale to tell. In the finals, AC. Cairus (H.Q.), put up a very plucky show, but was outclassed.

The Light-Weights were undoubtedly the best class and the best boxing of the meeting was seen in this weight; McAvoy (R.A.F. School), Cornwall (Depot), Wotton (60 Sqdn.), and Asquits (28 Sqdn.) were the most noticeable. Wotton would have given McAvoy a close run if he had only boxed him; however, he would go in and fight him, with the result that McAvoy was too strong for him altogether.

The best fight in the Welters was on the opening night, when Wolfeson (28 Sqdn.), met Caldecot (H.Q.); they punished other severely, and kept going for the whole of the rounds, Wolfeson just scraping home on points. Rosenthal (Depot), is a very pretty boxer, and put up a plucky fight in the finals, but Wolfeson proved too strong for him.

In the Bantam-Weights, Bouch (H.Q.), and Steeves (5 Sqdn.) were as evenly matched as one could hope for.

Athletic Results.—100 yards.—1, AC. Weeks (31 Sqdn.); 2, Cpl. Kemp (5 Sqdn.); 3, AC. Jackson (School). Time 10.9/10 secs.

220 Yards :—1, AC. Weeks (31 Sqdn.); 2, F/O. Mason (H.Q.); 3, AC. Grant (Park). Time 23.2½ secs.

440 Yards :—1, AC. Gampbell (27 Sqdn.); 2, Cpl. Kemp (5 Sqdn.); 3, AC. Peskett (60 Sqdn.). Time 57.9/10 secs.

880 Yards :—1, F/O. Catchpole (Depot); 2, AC. Crabb (27 Sqdn.); 3, AC. Ferres (20 Sqdn.). Time 2 mins. 13.2/5 secs.

120 Handles :—1, Sgt. Walker (27 Sqdn.); 2, AC. Bowen (5 Sqdn.); 3, AC Schaschke (20 Sqdn.). Time 18.9/10 secs.

Mile Relay Race :—1, 27 Sqdn.; 2, Depot; 3, 5 Sqdn. Time 4 min. 4 secs.

High Jump :—1, AC. Dawes (Depot); 2, Cpl. Silbert (27 Sqdn.); 3, Sjt. Walkes (27 Sqdn.). Height 5 ft. 1½ ins.

Long Jump :—1, A. C. Dawes (Depot); 2, Sjt. Walker (27 Sqdn.); 3, L/AC. Jones (Depot). Length 17 ft. 6½ ins.

With the idea of undermining everyone's training, there was a full programme of evening entertainments besides the three nights of boxing. An excellent R.A.F. Concert party performed on Tuesday night in the concert hall in the barracks and again on Wednesday in the Officers' Club.

The airmen gave a very successful dance on Thursday night and on the following night the Serjeants had a fancy dress dance which went on till nearly breakfast time the next day.

There was ample opportunity on the 9th and 11th to augment the incomes of the bookmakers at the Ambala races —an opportunity for charity of which a good many people availed themselves. It was very gratifying to see F/Lt. Lindop's " Eternity " win the Service Plate, a race open to all Commissioned Officers of H.M.'s Services, while Wing/Cmdr. Barton's horses were also prominent but failed to catch the judge's eye.

In the final of the Ambala Spring Polo Tournament which was played on the 12th, the R.A.F. Ambala Team were beaten in the final (5—3) by a team from the 11/12th Cavalry, Meerut, after a very good game.

The final effort was the dance given by the officers of the R.A.F. Ambala at the Sirhind Club, at which there were nearly 300 guests. The room was delightfully decorated and specially lighted for the occasion—a first class model of a Bristol Fighter made by the Ambala Squadron, hanging from the ceiling did a sustained flat spin throughout the evening. The R.A.F. Officers' Jazz Band provided the music, and played excellently and with undiminished energy till four o'clock in the morning. The supper was excellent. The person who so tactlessly turned the searchlight on the wrong people at the wrong moment is being severely dealt with.

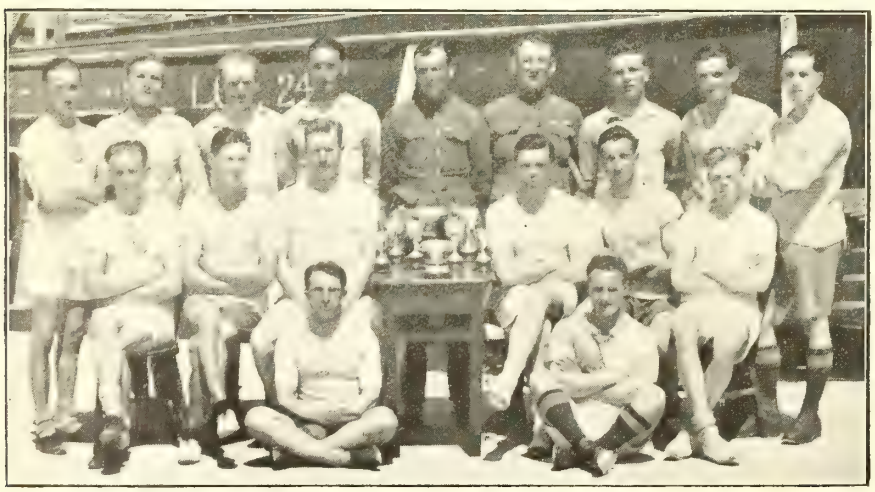
The next day the dilapidated remnants of the various teams returned to their units : most of them, however, had at least two days in the train in which to sleep off the ill effects.

28 Squadron, Kohat.

Rugby.—On March 11th 28 Sqdn. played " A " Coy 1st Batn. Border Regt. on the Gymkhana ground. The match resulted in a win for the former by 6 points to 3, after quite a good game on both sides. The R.A.F. were kept together well by F/Os. Rivet-Carnac and Freeman, whose addition to the team has made a great improvement, and it is hoped to obtain better results still in future matches.

Association.—On March 15th 28 Sqdn. 2nd XI. played "G" Coy. R.E. Signals on the latter's ground, the match resulting in a win for the former by 3 goals to 1, after a most exciting game. The R.A.F. after ten minutes' play opened the scoring through AC. Willers, who was in good form throughout the game. Before half time AC. Riley added another with a lovely ground shot. In the second half the Signals pressed hard, but they were only able to score through a penalty given for hands in the goal area, thanks to the good play of AC. Bowley in the R.A.F. goal.

28 Squadron's 2nd eleven played against " G " Signals R.E., on April 7th, winning by 2 goals to 1. AC. Willers scored both goals for the R.A.F., and the Signallers were beaten for the first time since they arrived at Kohat.



" B " FLIGHT 267 SQUADRON MALTA, WINNERS OF THE INTER-FLIGHT CUP.—Left to right, back row : AC. Head, AC. Stanton, F/Sjt. Moore, AC. Doran, Cpl. Peek, Cpl. Pentecost, AC. West, AC. Kerr, AC. Smith. Middle row : AC. Holloway, L/AC. Fry, F/O. Wagner, F/Lt. Sadler, L/AC. Urquhart, AC. Phipps. Front row : Cpl. Beckett, AC. Parker.

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The first DE HAVILLAND aeroplane was produced 14 YEARS AGO and since 1908 the name DH. has been associated with a long series of highly successful types.

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It is estimated that to-day there are more DE HAVILLAND machines in civil use than any other type in the world.

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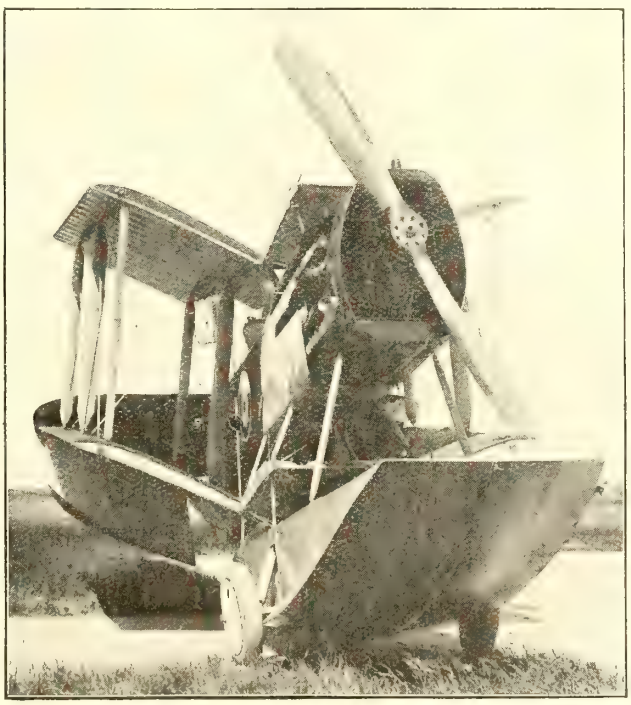
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Front View of the Parnall "Puffin," a Folding-wing Amphibian Aeroplane (Napier Engine).

This is shown as an examp'e of the class of work done by George Parnall and Co., and supplied to the British and Allied Governments.

Any class of aeroplane for any purpose can be designed and built by the firm.

The replay of this match was played on the R.E.'s ground on April 9th, and resulted in the R.A.F. being beaten by 4 goals to 1. Again AC. Willers scored the goal.

On April 8th 28 Sqdn 2nd eleven were beaten by "A" Co. the Border Regt. by 3 goals to 1. AC. Rapson scored with a fine drop shot.

On April 16th, 28 Sqdn. 2nd XI. played the 22nd M.T. Coy., R.A.S.C., and after rather a one-sided game ran out winners by 4 goals to 1. The goal scorers for the R.A.F. were AC. Willers (3) and AC. Bilner, who played a great game on the left wing, and thoroughly deserved his goal. Mention is also made of the backs, ACs. McClean and Reid.

On April 27th, the Sqdn. played " G " Coy. R.E. Signals, on their ground, and after quite a good game were winners by 3 goals to 1. The goal scorer for the R.A.F. was AC. Bilner (3). Good work was also done by ACs. Marshall and McClean at backs. The R.A.F. goalkeeper, AC. Jones, saved his side very well at times.

On May 16th 28 Sqdn., who had moved to Parachinar, played H.Q. Co., the Border Regt., on the City ground, the Border Regt. winning by 4 goals to 2. AC. Marshall scored first for the R.A.F. with a shot from outside the goal area. Shortly after half time AC. Riley scored. Following this the Border Regt. got away and scored twice in succesion. Play was resumed to midfield and just before full time the Soldiers scored again. In addition to ACs. Marshall and Riley, L/AC. Durham played a good game.

On May 20th 28 Sqdn. played 31 Sqdn., the latter winning by 3 goals to 1. " 28 " pressed hard in the first half and AC. Riley shot the first goal. Before half time, however, " 31 " had found the net twice. AC. Jones played a good game in goal and AC.'s Watts, Riley and Wolfson also deserve mention.

Hockey.—On March 12th 28 Sqdn. played " G " Coy. R.E. Signals and won by 4 goals to 2, after quite a good game, though the latter were much the heavier team. In the first half the Signals ran through several times, but the attacks were broken up by ACs. Hobbs and Heard at back, half time arriving with the score 2 all.

In the second half the R.A.F. played well together and before full time had added 2 more goals to their score. The goal scorers for the R.A.F. were F/Lt. Lindop, L/AC. Raby (2), and AC. Bowley.

On April 23rd, the Sqdn. played " G " Signals on the Fort Ground, and after a very fast game lost by 3 goals to 2. At the end of the first half the Signals were leading by 2 goals to 1, but shortly after the restart the R.A.F. scored an equaliser through L/AC.1 Raby, who also got the previous goal for his side, and throughout the game was most prominent in his position at centre forward. The R.A.F. goalie cleared some very hard shots.

On April 26th, the Sqdn. played the Rajputs, the game ending in a win for the latter by 3 goals to 1. Several matches have been played with this team, but without a win for us. They opened their scoring after about ten minutes play, the goalie having no chance to save, but soon after this F/O. Boret was able to equalise with a splendid ground shot. In the second half, however, they managed to score 2 more goals.

31 and 28 Squadrons, Parachinar.

A Station Sports Meeting was held on the aerodrome on June 10th, and was a great success. Competition was keen and a number of spectators turned up from adjoining units. The prizes were presented by Mrs. Harris, and the band of the 1st Batt. Border Regt. played during the meeting. The Cup given by S/Ldr. J. T. Whittaker, M.C., Station Commander, for the best individual effort was won by AC.1. Weekes, of 31 Squadron.

The following were the results of the various events :—100 yds : AC. Weekes (10-1/5 secs.). 220 yds : AC. Weekes, 31 Sqdn. 440 yds : AC. Bilner, 28 Sqdn. Half mile : AC. Massarella, 31 Sqdn. 1 mile : AC. Massarella.

Long Jump : AC. Clewes, 31 Sqdn. High Jump : AC. Clewes. Putting-the-Weight : AC. Walsh, 31 Sqdn. Throwing the Cricket Ball : AC. Thomas, 28 Sqdn.

Open 220 yds, British ranks : AC. Weekes, 31 Sqdn.

Hockey :—On June 4th, the R.A.F. station played the Kurram Militia on the latter's ground, the Militia winning by 5 goals to 3. The R.A.F. were the first to take the lead through their opponents' goalie accidentally putting the ball into his own goal. At half time the score stood 2 all, but shortly after the re-start the Militia got through twice in succession, scoring both times. The R.A.F. were well served by S/Ldr. Whittaker, F/O. Steele and L/AC. Davies.

Association Football :—On June 8th, on the City Ground, 31 Sqdn. beat 28 Sqdn. by 4 goals to 1. 28 Sqdn. had several new players on trial and their combination was upset.

No. 5 Squadron, Quetta.

Prior to the Divisional Boxing Competitions at Quetta, No. 5 Squadron held an eliminating competition of 36 bouts. When one bears in mind that the Air Force in Quetta is only of company strength it will be obvious that this a very good show indeed. The results were as follows :—

Officers' Welter Weights : F/O. J. T. O'Brien-Saint.

Other Ranks' Fly Weights : AC. J. Roberts. Bantam Weights : AC. G. R. Steeves. Feather Weights : AC. J. Foster. Light Weights : Sjt. J. Shimmons. Welter Weights : AC. J. Maskell. Middle Weights : AC. A. J. Waite. Heavy Weights : AC. W. H. Loder.

An outstanding feature of the bouts included an exhilarating display by ACs. Roberts and Hawkins, the fight lasting full time and Roberts winning by a narrow margin only.

The Baluchistan Open Boxing Tournament took place on the 5th, 6th, 8th and 9th of May. No. 5 Sqdn. entered five competitors, two of whom succeeded in winning their weights outright. AC. Waite beat Pte. Friar of the Cameronians on points in the Welter Weight division and AC. Lodder defeated Gnr. Sexton, R.G.A., on points after a very good fight.

207 Squadron, Malta.

Cricket :—On May 6th, the Squadron played the 2nd Batt. the Sussex Regt. The latter were all out for 253 runs and the former made 196 for 8 wickets. F/Lt. Norton scored 70 and F/O. Wagner 31, runs. Cpl. Gill and L/AC. Parkinson withstood the attack for half an hour and saved the game for the R.A.F.

On May 18th, against *H.M.S. Centaur*, the Sqdn. made 131 and *H.M.S. Centaur* scored 105 for 9 wickets. F/O. Pennington scored 58 and AC.1. Jones, 26. L/AC. Townsend took 6 wickets for 30 runs.

On May 24th, the R.E.'s were beaten with a score of 163 against 174 by the R.A.F. F/O. Wagner took 3 wickets for 4 runs. F/O. Pennington scored 78. The ninth wicket fell at the score of 153. F/Lt. Bryant and Cpl. Drinkwater made an excellent stand for the last wicket, converting a likely defeat into a victory by putting up a stirling defence against some good bowling.

On June 3rd, the R.A.F. played the 1st Batt. Gordon Highlanders. The R.A.F. scored 253 and the Gordons 138.

No. 207 Squadron, Bircham Newton.

The Squadron's Annual Sports were held on June 30th. The Challenge Cup presented by S/Ldr. and Mrs. Tedder for the flight obtaining the highest aggregate of points was won by " A " Flight with 30 points. The Cup presented by F/Lt. Humphreys, A.F.C., for Inter-Flight Tug-of-War, was won by H.Q. Flight. The Cup presented by F/Lt. Gordon, D.F.C., for the Inter-Flight Relay Race, was won by " A " Flight.

The results of the various events were as follows :—100 yds : F/O. Rowe (10-1.5 secs.). 220 yds : F/O. Rowe (24 secs.). 440 yds. F/O Rowe (1 min. 6-1.5 secs.). Half Mile : AC.1. Price. 1 mile : AC. Twyford (5 mins. 30-4.5 secs.). 3 miles : F/O. Palmer (19 mins. 28-1.5 secs.).

Long Jump : F/O. Rowe (18 ft. 8 ins.). High Jump : F/O. Rowe (4 ft. 8 ins.). Hurdles : F/O. Rowe (17-3.5 secs.).

No. 1 F.T.S., Netheravon.

Cricket :—On June 10th, No. 1 F.T.S. played the School of Military Administration on the Netheravon ground. Batting first, Netheravon scored 229 runs, of which S/Ldr. Morris made 111, AC. Pollitt, 22, and S/Ldr. McCalam and F/O. Way, 19 each. The S.M.A. were dismissed for 94, F/O. Adams taking 3 wickets for 25 runs and AC. Davenport 3 wickets for 7 runs.

On June 14th, the School played the Wilts. Depot at Devizes, winning by 95 runs and 2 wickets. F/O. Adams after scoring 88 retired and S/Ldr. Morris retired after making 50. AC. Bailes contributed 35 and AC. Davenport 26. The Depot made 138. S/Ldr. Morris took 6 wickets for 35 and F/O. Adams, 3 for 46.

On June 17th, Netheravon played the Cavalry School. The Cavalry School batted first and made 51. Cpl. Dunston and AC. Iveson bowled throughout the innings, the former taking 4 wickets for 18 runs and the latter 6 for 21. No. 1 F.T.S. ran up a total of 170 (AC.1. Davenport 55), thus winning by 119 runs.

CAPT. MCMILLAN'S PROGRESS.

Capt. Norman McMillan with his two passengers left Basra early on Monday, July 17th, and reached Bundar Abbas in Persia about 04.50 on the Tuesday. According to Major Wilfred Blake, one of the passengers, the machine arrived at Bushire at 09.40 on the Monday, two machines of the R.A.F. accompanying Capt. McMillan's D.H.9 (" Puma " engine) as far as the sea, which is the limit of British territory. As there was some delay at Bushire Capt. McMillan was unable to reach Bundar Abbas that night and landed on the sand at about 17.00 hours.

He started just before dawn on July 18th and reached Bundar Abbas as stated at 04.50. Continuing the same afternoon he and his passengers arrived at Charbar on the Arabian Sea at 18.44.

On Wednesday, July 19th, Capt. McMillan and his passengers reached Karachi having so far taken 55 actual flying hours from London, which they left on May 24th.

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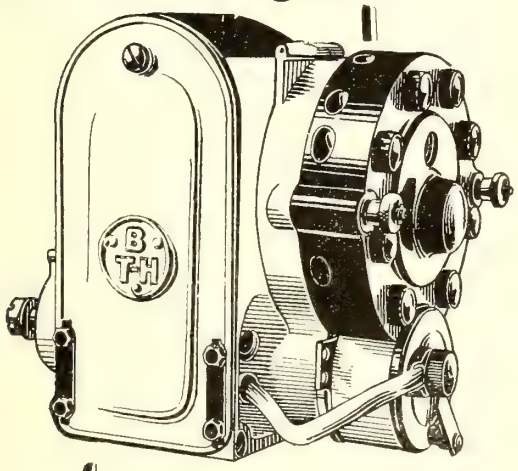
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COMMERCIAL AERONAUTICS.

AN ANNIVERSARY.

On July 25th, 1909, the English Channel was crossed by air for the first time in history. M. Blèriot, on a Blèriot monoplane Type XI, fitted with a three-cylinder 25 h.p. Anzani engine, left Sangatte, and after some fifty minutes' flying landed on a dip in the cliffs by Dover Castle. The journey across was made at a height of 150 ft., and on arrival the machine was unable to climb over the cliffs, so M. Blèriot had to fly along until the cliffs were below the height at which he was flying.

Since then more than 30 civilian machines carrying nearly 200 persons have on one day crossed the Channel on the regular commercial services and the only thing that calls for remark is when a number of machines *fail* to cross the Channel on any day.—G. D.

The London Terminal Aerodrome.

CONTINENTAL ARRIVALS AND DEPARTURES

ABBREVIATIONS:—A.D.—Aircraft Disposal Co. B.A. Berkshire Aviation Co. B.C.—Bristol Aeroplane Co. C.A.—Department of Civil Aviation. D.A.—Daimler Airway. D.H.—De Havilland Aircraft Co. G.E.—Compagnie des Grands Express Aeriens. H.P.—Handley Page Transport Ltd. I.L.—Instone Air Line. K.L.—Koninklijke Luchtvaart Maatschappij. L.A.—Leatherhead Aviation Services. M.A.—Messageries Aeriennes. M.W.—Marconi Wireless Telegraph Co. Ltd. P.O.—Privately owned. P.L.—Petters Ltd. S.F.—Surrey Flying Services.

ANALYSIS OF FIGURES.

Number of trips made during week.—I.L. 39, H.P. 16, D.A 32, M.A. 25, G.E. 12, K.L. 24, D.H. 3, P.O. 1.

Number of passengers carried.—I.L. 147, H.P. 94, D.A. 78, M.A. 25, G.E. 36, K.L. 19, D.H. 6, P.O. 1.

Total number of trips by British machines: 91 carrying 326 passengers.

Total number of trips by foreign machines: 61 carrying 85 passengers.

Trips per day.— Monday, 20; Tuesday, 24; Wednesday, 27; Thursday, 24; Friday, 24; Saturday, 27; Sunday, 6.

STATISTICS.

Week ending July 23rd 1922

Machines, 152; Passengers, 411; Crews, 256; Total Personnel, 667

Corresponding week last year:—

Machines, 115; Passengers, 430; Crews, 137; Total Personnel, 567

Corresponding week, 1920:—

Machines, 106; Passengers, 219; Crews, 137; Total Personnel, 356

Corresponding week, 1909:—

Machines, 1; Passengers, 0; Crew, 1; Total Personnel, 1

NOTES OF THE WEEK.

The Daimler Airway this week started three services per day in each direction, the first one being at 05.15 hrs. One machine does four trips and the other does two. Mr. Robinson, late of the Berkshire Aviation Co., has now joined the Daimler Airway. He will probably be referred to as "Berk" to distinguish him from "Bin."

By arrangement with a travel firm a passenger left Liverpool at 23.00 hrs. by train one day last week. He was met at Euston with a car on arrival and taken to Croydon, where he caught the 05.15 hrs. machine and was able to keep an appointment in Paris 09.00 hrs.

On Monday of this week the new engine test house, put up by the Daimler Airway, was opened by Sir Sefton Brancker, who after a few well-chosen words broke a seal of the well-known Daimler red and threw open the doors where a Napier "Lion" was discovered recumbent. "According to plan," a lever should have been pulled and the sleeping monster should have awakened to life throbbing in every pore (or paw). But the "Lion," which on actual service almost invariably starts up at the first pull over, remained true to the doctrine of any petrol engine which is on show. Everyone knows the car or the motor-cycle which always starts up at the first turn over, and how, if one is trying to sell it and is showing off its wonderful easy starting ability to the prospective buyer, one has to wear oneself to a shadow before it will condescend to start.

Well, the Napier "Lion" naturally was not as bad as that, nevertheless it was on its dignity and allowed itself to be given several swings before it would fire.

After the demonstration, several passengers were taken for flights in a D.H.34.

The Instone Air Line took delivery of the new D.H.34, G-EBBV, during the week and three Vulcans are now going strong. On Friday morning, Mr. Macmullin was flying the "Vimy" and was carrying out some landings over the new Brighton Road, towards the Customs House. The old undercarriage had been put on temporarily while alterations were made on the new one.

In the last landing he struck the very bad ridge that runs out at right angles to the Disposal Company's big shed. The undercarriage collapsed and went through the right-hand lower plane. The rest of the day was occupied in getting it into the hangar and as it lay derelict on the aerodrome, it was a source of very great interest to incoming machines.

Handley Page Transport have now got the Napier W.8, G-EAPJ, running on the service again and on Wednesday with a good wind behind she lowered the twin-engine record for the trip, occupying only 1 hour 42 minutes, with Major Foot as the pilot. The previous best "twin-engine" time was made by the same machine in December, 1919, on her maiden trip, which she completed in 1 hour 50 minutes.

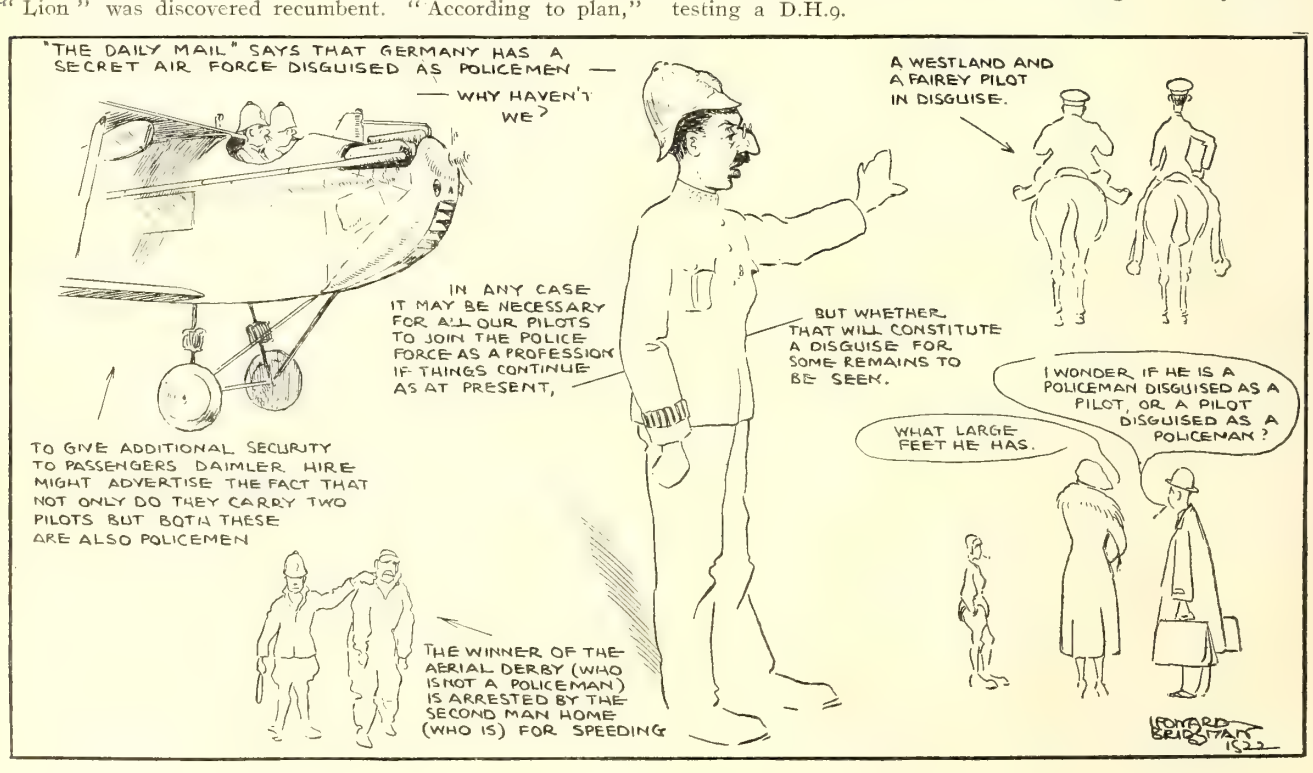
The Surrey Flying Services have had a good week. Mr. Youell took a passenger for a sight-seeing tour round part of England on the Renault Avro during the week, making a circuit *via* Yeovil, Bristol, Bath and Birmingham.

During the week-end Mr. Muir and Mr. Youell carried well over three hundred passengers, at five shillings a head, in the two Avros, more than three-quarters of these being taken on Sunday.

The Aircraft Disposal Company have been doing a lot of work during the week. On Monday Capt. Stocken was testing a Bristol and a D.H.9. Mr. Hayns left on the latter for Brussels soon afterwards.

On Wednesday Capt Stocken made two tests on a D.H.9 and then went up for a demonstration on an S.E.5a and a "Tinside" during the course of which he did numerous stunts. About tea-time Mr. Hayns took another D.H.9 to Brussels and the next day he took a Bristol Fighter, after Capt Stocken had previously tested it.

On Friday Capt. Stocken tested two D.H.9s and then took one of them to Brussels. In the evening Mr. Hayns was testing a D.H.9.



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Capt. Stocken on Saturday finished a good week by putting three D.H.9s through their acceptance test for a foreign Power.

On Friday last a very old friend appeared at the aerodrome to wit the D.H.16, G-EAPT, which was a regular member of the old A.T. & T. and is now of the De Havilland Hire Service, Mr. Cobham took four passengers to Ostende in the machine which has a Rolls-Royce engine.—G. D.

Stag Lane.

Since July 11th, the De Havilland Aircraft Co., Ltd., have completed some 65 hours' flying on various flights, photographic work, joy-rides, dual instruction, etc.

On the 11th Mr. Wilson took three passengers to Brighton and back, and on the 12th Mr. Broad returned from Cologne *via* Paris with Lord Gorell as passenger.

On the 14th Mr. Cobham went to Deauville with two passengers and returned on the 15th, and on that day Mr. Broad ran the weekly Manchester service using the first re-conditioned D.H.16, on which he afterwards flew with two passengers to Ostende, returning on the next day.

On Saturday, the 15th, Mr. Wilson started on a photographic tour through the Midlands and the North.

On the 17th Mr. Cobham flew Mr. C. C. Walker to Martlesham Heath and back, in connection with the official trials of the D.H.34

On the 18th Mr. Broad flew to Manchester and back, and on the 20th Mr. Cobham went to Calais and back.

On the 22nd Mr. Broad ran the regular Manchester trip, and Mr. Cobham took four passengers to Ostende on the D.H.16. Mr. Wilson returned from the photographic tour in the Midlands and the North. On Sunday, the 23rd, Mr. Keys flew to Lympne.

The above particulars do not include the daily newspaper service between Lympne and Ostende which has been running with monotonous regularity since its inception three weeks ago. This has been run by Mr. Barnard with one D.H.9, but from Monday, the 24th, three machines are being employed on this service running three return services per day. It is interesting to note that the D.H.9, G-EBXX, has got through every day even when other machines have been held up by weather

Four pupils, including two ladies, are now receiving instruction on D.H.6s.—L. B.

Manchester.

On Saturday, July 15th, the Manchester Aviation Co organised an aviation exhibition of racing, balloon sniping, etc., at the Alexandra Park Aerodrome in aid of the Lord Mayor of Manchester's Unemployment Fund, to which 25 per cent. of the gross takings were handed.

Sir Robert Peacock, the Chief Constable of Manchester, made the first flight piloted by Mr. E. L. Wilson, Director of the Manchester Co., and subsequently about 80 passengers were carried at £1 each.

A handicap race between three machines carrying representatives of the *Manchester Guardian*, the *Manchester Guardian Commercial* and the *Manchester Evening News* resulted in a win for the *Manchester Guardian* machine, a 100 h.p. Mono Avro. The Balloon Sniping was won by Mr. D. Howorth, with Mr. E. L. Wilson as pilot. Quite a considerable crowd assembled to witness this exhibition, and the Mayor's Fund benefited thereby.

On the Saturday before Whitweek, the Manchester Aviation Co. started to run a service to the Isle of Man with newspapers twice daily with their D.H.9, G-EBDG, but this had to be abandoned on Tuesday owing to a leaky cylinder block. As no spare was available Mr. Barnard, of the De Havilland Aircraft Co., Ltd., carried on with a D.H.9. The Manchester Co. hope to re-open this service during August.

At present they are doing passenger carrying at the Alexandra Park Aerodrome and are also doing a considerable amount of photographic work for various commercial firms.

PERSONAL NOTICES.

DEATHS.

KERSHAW.—On July 24th, at Folkestone, as the result of a flying accident, Air Mechanic Frank Kershaw. The machine, which was a dual-control Snipe, was carrying out a test flight and crashed at the foot of Sugar Loaf Hill.

STEWART.—On July 8th, accidently killed flying in Paraguay, Capt. Sidney J. Stewart, late R.F.C. (27th, 40th, and 208th Sqdns.), eldest surviving son of Mr. and Mrs. Edward Stewart, Alton, Hants, aged 27 years.

ENGAGEMENT.

COLE-HAMILTON—LATTA.—The engagement is announced between John Beresford Cole-Hamilton, R.A.F., late R.N., and Sybil, elder daughter of Sir John and Lady Latta, of 12, Portman Square, W.1.

MARRIAGES.

HUNTER TUITE.—On July 19th, F/O Henry John Hunter, R.A.F., third son of the late William Hunter, of Reigate, and Mrs. Hunter, of Polwood, Cranbrook, to Moira Gwendolen Hatton, younger daughter of Capt. H. C. S. Tuite and Mrs Tuite, of 19a, Perham Road, W.14.

SMALL—GRIFFITH.—On July 12th, at St. Paul's Church, Leamington Spa, Capt. David Whitlaw (late R.A.F.), only son of Mr. and Mrs. T. K. Small, Glenroy, Hatch End, Middlesex, to Dreena Priestley, only daughter of Mr. and Mrs Fred Griffith, The Lawn, Leamington Spa.

TANSLEY—DENNIS.—On July 5th, at Uxbridge, F/Lt. Herbert Edwin Tansley, M.C., R.A.F., third son of Mr. and Mrs. W. Jackson-Tansley, of Washwood Heath, to Ann (Shock) Dennis (formerly Brown), younger daughter of Mr. and Mrs. George Brown, of "Samson's," Bourn, Cambridgeshire.

WARING—MORRISON.—On July 20th, at St. Philips, Sydenham, by the Rev. C. T. Waring, Rupert Thomas Tremaine Waring, late R.A.F., elder son of the Rev. and Mrs. C. T. Waring, St. Philip's Vicarage, Sydenham, to Jeanette Kathleen Begbie Morrison, eldest daughter of Mr. and Mrs. Charles Morrison of Northcoates,, West Hill, Sydenham.

BIRTHS.

ADAMS.—On July 21st, at Sydney, N.S.W., to Winifred, wife of Major Barton Adams, late R.A.F.—a son.

BOYLE.—On 15th July, at 10, Eaton Square, S.W.1, to Ethel, wife of Grp/Capt. the Hon. John Boyle, R.A.F.—a son.

NICHOLAS.—On July 19th, at Derby House, Woodbridge, to Marian, wife of S/Ldr. C. H. Nicholas, R.A.F.—a daughter.

WEIR.—On July 17th, at 39, Malvern Road, Weston-super-Mare, the wife of F/Lt. A. G. Weir, R.A.F.—a daughter.

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De Havilland Aircraft Co., Ltd., The, Stag Lane Aerodrome, Edgware. "Havilland," Edgware. Kingsbury 160-1 (2 lines) 73
Fairey Aviation Co., Ltd., The, Hayes, Middlesex "Airily," Hayes, Middlesex. Hayes, Middlesex 19 61
Parnall, George, & Co., Coliseum Works, Park Row, Bristol. "Warplanes," Bristol. Bristol 4773 (2 lines) 73
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Armstrong Siddeley Motors, Ltd., Coventry "Sidarm," Coventry. Coventry 954
Bristol Aeroplane Co., Ltd., The, Filton House, Bristol. "Aviation," Filton. Bristol 3906 *Back Cover*
Napier, D., & Son, Ltd., 14, New Burlington Street, London, W.1. "Nitrifier," London. Gerrard 8926 (4 lines) 63
Sunbeam Motor Car Co., Ltd., The, Wolverhampton. "Moorfield," Wolverhampton. Wolverhampton 985 64

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British Thomson-Houston Co., Ltd., The, Rugby. "Asteroidal," Rugby. Rugby 286 75

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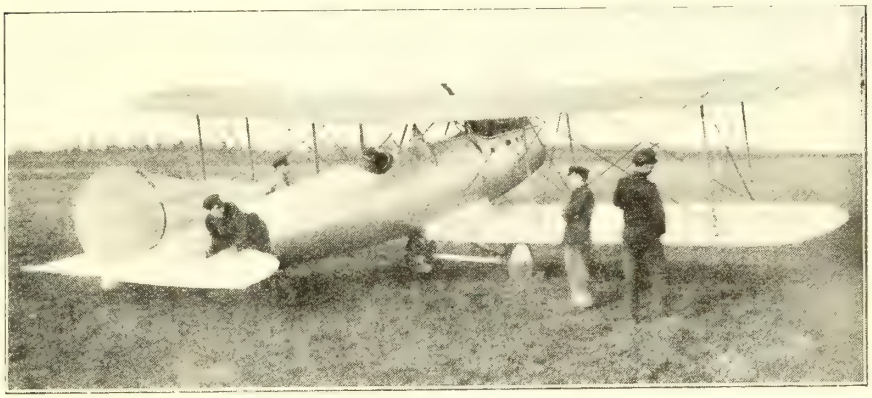
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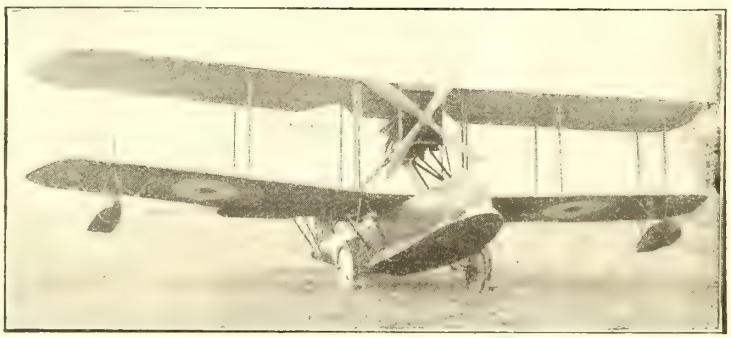
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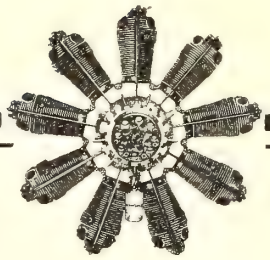
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ON THE LORDS AND THE R.A.F.

On most occasions when a matter of Imperial importance is the subject of debate the House of Lords discusses it not only more honestly but more intelligently than does the House of Commons. Which is only natural when one considers that the members of the Upper House have not to play down to the mob and the Press in order to keep their seats (and £400 per annum), and that with the exception of some few recent creations they are men of education who have inherited their wealth and have not made it by means which may or may not have been honest. If people only knew it the House of Lords is what gives British politics such immense superiority over those of any other Nation.

That being so it was only to be expected that the debate on the Air Force in the House of Lords on July 27 was far more interesting, much nearer the facts and considerably freer from the piffle of the half-baked political brain than is customary in debates on Air in the House of Commons. In fact one might say that on such occasions the Commons' debates are chiefly hot air whereas the Lord's debates are always conducted with a calm cool air.

Unfortunately the official reports of the Lords' debates are only published some days after the discussion, as their Lordships having a strict regard for truth insist on editing their own speeches before publication instead of as in the case of the Commons being content to leave their reputations in the hands of the official reporters. However, the *Times* has, despite its changes of fortune, retained its high level of accuracy in reporting Parliamentary affairs and one has therefore taken the liberty of extracting therefrom considerable portions of the debate, and one desires to acknowledge one's indebtedness to that newspaper. Comments on the speeches follow each and are enclosed in brackets so as to avoid confusion.

Lord Londonderry's Speech.

The debate was opened by the Marquess of Londonderry, a former Under-Secretary for Air. Lord Londonderry is a statesman of ability and as he left the Air Ministry in order to devote himself patriotically to the affairs of Northern Ireland and not because of any disagreement with the Air Council it may be taken that his speech was intended to open the way for his successor, Lord Gorell, also an unusually able administrator.

Lord Londonderry asked the Under-Secretary for Air whether the Government realised the anxiety of the nation with regard to the alleged deficiencies of the Air Service in all its branches, especially with regard to its naval and home defence sides, and whether he was in a position to make a statement. It was imperative, he said, that there should be real co-ordination between the three arms of the Service.

He had recently noticed that a journalistic war was being waged against the Air Ministry. He did not know how far it had disturbed the Air Minister. The criticism, as usual, in his opinion, was intended to injure the Government rather than benefit the Air Service. (Hear, hear.) They heard of an Air Service which could not fly, they heard criticisms of the proportion of machines to men, comparisons with France and other countries, and of the dissatisfaction of the Navy and the Army, and they were told that there were no modern machines, and of the exposure of London and the country to attack.

He had no doubt or misgivings as to the power of the Ministry to refute the criticism. He had studied the Estimates for the three Services, and he found that less than one-tenth of our expenditure was devoted to the Air Force. That might or might not be a correct proportion. He hoped the Government would be able to tell their Lordships of the relative importance of the three arms of the Service.

The arguments in favour of a separate Air Force appeared to him overwhelming, and he failed to understand how as subsidiary branches of the Army and of the Navy the immense and almost undeveloped potentialities of an independent Air Force as a decisive factor in war could possibly be developed. The whole question of the substitution of the Air arm for the Navy and for the Army came under the heading of co-ordination, which naturally it was the duty of the Committee of Imperial Defence to consider.

He hoped that no Press campaign, usually so virulent and usually so uninstructed, and frequently fallacious, would influence the Government to deviate one hair's-breadth from the plan which they proposed to adopt. He did not want the Air Force unduly developed at the expense of the Navy or Army, or *vice versa*. But he wanted the money that it would be necessary to allocate to the Services apportioned with a close regard to the actual services which each arm could render.

He had no doubts about our Air Ministry; he had every confidence in the Secretary of State and in the noble lord who represented the Air Ministry in that House, but he was not prepared to ignore the assailants of the Air Ministry, and he felt that these assailants were best destroyed and defeated by a full and comprehensive statement of the facts which the Air Ministry had been invariably capable of giving.

There was the question of civil aviation, and its bearing on the fighting Service—how far civil aviation could be the reservoir in time of war for the Air Service. How much would it cost to raise a large reserve through the instrumentality of civil aviation? Would it be less costly than providing regular squadrons?

[There you have a plain statement of fact. The "journalistic war" is familiar to all readers of THE AEROPLANE, which in this matter finds itself in the unusual position of being almost alone among newspapers in unqualified support of those in authority at the Air Ministry even if not in support of Mr. Lloyd George's Government as such. Lord Londonderry's point that the Air Vote (for all purposes) is only one-tenth of the whole amount voted for the King's Armed Forces is new and shows how lamentably the Government has failed to comprehend the importance of our First Line of Defence. It is evident that the Government has not "apportioned with a close regard to the actual services which each arm could render" the money allocated to the Services.]

Lord Montagu's Contribution.

The Lord Montagu of Beaulieu has always been a firm believer in Air Power and though one has not always agreed with him in detail one has always agreed with his general principles. He supported Lord Londonderry, saying that he thought the Air Ministry had been unjustly attacked by some of its critics for not doing certain things for which it had not the money. He had never seen any reason to change his opinion that an independent Air Ministry and Air Service were vital to the country. As time went on he thought there was more reason for maintaining that separate Air Service. It was therefore absolutely vital that we should have an independent Air Force, continue the Air Ministry, and regard it more and more as our first line of defence.

Air Service training was a thing quite apart from any other form of training. The idea that they could take a naval officer or a military officer for a time and then return him to his Service was a fallacy. They must get the Air officer young and keep him as long as they could.

He had seen the working of the Air Force not only during war, but since the war. In Somaliland the aeroplane was used with such effect that he should think that this country was saved at least a million sterling. On the North-West Frontier of India aeroplanes had, on the whole, produced a very important effect, if not as important as was at one time hoped. He considered that the Air Ministry had done extremely well, considering the limited means at its disposal.

[The reason why the R.A.F. has not done as well in India as it might have done is primarily that the Indian Government and the Indian Staff has not yet understood what aeroplanes can do when left to work in the R.A.F.'s own way. The Indian Staff is still in the stage of believing in "punitive expeditions" on foot. At the same time the R.A.F. itself is not free from blame in that unfortunately the per-

sonnel, of both high and low rank, who went to India after the Armistice have in some cases failed to impress the Army either with their mental ability or their social fitness for their positions. These troubles are being put right and as the result of Sir John Salmond's visit we may expect a very different story a year hence.]

The Non-Contents.

There followed a series of speeches by Noble Lords who, while agreeing with Lord Londonderry in anxiety for adequate air strength, were more concerned with backing the Navy than with helping the Air Force to success.

Lord Sydenham said there might have been exaggerations in the Press, but he thought the anxiety which the public had felt on this subject had been fully justified. The present position was dangerous and deplorable. Though it was probable there would be no great war for several years, only dreamers believed wars were at an end. The Navy would be incomplete and handicapped if it were not provided with an adequate Air Force thoroughly trained at sea. It must be an integral part of the Navy, just as much as light cruisers and submarines went to make up the modern fleet. Our Fleet at present was equal to that of the United States, and its requirements must be the same.

[Lord Sydenham was at one time a member of the Air Board. He is a trained soldier and a distinguished Colonial Administrator. But he is of the ultra-conservative type now commonly known as a Die-Hard. One has complete understanding of his views, but one disagrees entirely from them. Also he is completely misinformed by his Naval friends. According to the *Morning Post*, he added to what appears above that the strength of the U.S. Naval Air Service for 1923 is to be 86 fighting and 73 spotting machines, while ours seemed to be six fighters and 18 spotters. He may be right about the U.S. Navy, but he is entirely misled about our Fleet. The figures he mentions are for machines actually in use, that is to say, all that the Navy can accommodate. If the Navy wants a few hundred it can have them for the asking. And if it wants a few thousands it has only to hand over to the Air Ministry the price of a battleship and it will have them within six months.]

Lord Vernon said it was widely felt in naval circles that the Navy should have its own Air Force. The present system of having an independent Air Force meant that all future warlike operations must be combined operations, and they knew from the experience of the past that that was more difficult than when any arm of the fighting Service operated separately. Many of the aeroplanes used in connexion with the Navy were really integral parts of the Fleet. The Navy believed that developments would take place better if it were an evolution of the Navy from the surface of the sea into the air. Unless and until the Navy could guarantee to this country the safety of its sea communications, the country would desire that the control of all the defence forces should be single and undivided.

[One suggests to Lord Vernon that a combined operation in which one of the co-operating forces is competent and the other is not is less likely to be disastrous than one in which a single force is concerned when that force has been proved to be as incompetent as the Navy proved itself to be in the recent War. The Navy failed abysmally to guard the sea communications of this country during the War. Such successful guarding as was done was the work of the R.N.A.S., the R.A.F., and the mobilised Mercantile Marine. The Navy allowed the *Lusitania* and the *Leinster* and hundreds of other ships to be sunk under its nose. The R.A.F. and the Mercantile Marine saved thousands. If the R.A.F. is left to develop its own sea-going branch it may be able to save the Navy in the next war. If that branch is left to the Navy it will merely be sunk with the Navy in the next war.]

A Former First Lord.

Following these Noble Lords came Viscount Long, who as Sir Walter Long was First Lord of the Admiralty. He also is of the Die-Hard type and belongs by rights to that period "when every gentleman wore a wig and every horse a crupper." He is the typical English squire with a taste for politics as a hobby. During his term at the Admiralty he absorbed certain old-fashioned Naval ideas of the immediately post-Trafalgar kind and has stuck to them with honourable pertinacity.

In his speech he said he became convinced in the early stages of the Conferences in 1919-1920 that the proposal to set up an Air Ministry with absolute control of the Air Force of either the Army or Navy, or both, was doomed to failure. Although the Admiralty and Navy of that day were united in their belief that the new system would not work, they threw themselves with the utmost loyalty into the task of trying to make it workable. If it did not work it was not their fault.

If they were to secure both efficiency and economy they must have an Air Force which was part of the naval system under the control of the Navy and run by them. They had been living in a fool's paradise while trying to create the other system.

A Commander-in-Chief on land, still more at sea, could not make his force really efficient if he had no responsibility for the flying parts of his fleet. Anybody who obtained the facts and figures as to the provision of a flying force for the Mediterranean Fleet would find that it was ridiculously inadequate. It was impossible for any naval commander to view the possibility of offensive action without grievous misgiving. Was the Commander-in-Chief of our Fleet to have command, or was there to be a separate Air command?

We must have an Air Ministry, for which there was plenty of work. It must have charge of the selection of types of flying machine, the purchase of materials and construction. But the Navy must be responsible for its own Air Force, have full control over it, and its cost should be a part of the Navy Estimates.

He hoped the Government in making their plans in the future would not hurriedly commit themselves to a system which they were quite right to try when they set up the Air Department, but which had proved a failure. There ought to be substituted for it something which would give us a more efficient and economical force.

[Lord Long has also been misled by his Naval friends. If the present scheme of co-operation with the Navy does not work it is entirely the fault of the Admiralty which has steadily hampered R.A.F. Naval work. It has failed to provide aircraft carriers. It has refused to try inexpensive experiments with new types of launching and boarding (not deck-landing) apparatus which the R.A.F. has approved. It has refused to release money to be spent on seaplanes and ship-planes. One quite agrees that "a Commander-in-Chief at sea could not make his force really efficient." The War proved that over and over again when various and sundry Naval Commanders refused to co-operate with the R.N.A.S. and with the R.A.F. Doubtless those same Admirals viewed offensive action with "grievous misgiving," and very rightly so. Naturally R.A.F. personnel at sea in future will be under the local Admiral for operations, but judging by the intelligence of the average senior Naval Officer it would be fatal to let him handle the work of the R.A.F. except in a vaguely general way. One agrees that the cost of Naval aircraft should "be a part of the Navy Estimates." That can be managed quite easily by the Treasury without changing any present arrangements. So far from the present system proving a failure the Navy is in a far better position aerially to-day than it could ever have been if its aircraft had been left to the muddle-headed management of their Lordships of the Admiralty.]

A Reasonable Argument.

The Earl of Selborne said we wanted an independent Air Force for independent air operations, after which arose the question of the best method of co-operation with the Army or Navy. To say that the Navy should depend for its supply of airmen and aircraft on the Air Ministry seemed to him no more reasonable than it would be to say that it should depend on the Royal Artillery for its guns. A man who was a most experienced pilot and observer by land might be of no use whatever to the Navy.

The Navy did not want naval airmen who were interchangeable with land airmen, but naval airmen who were interchangeable with other branches of the naval Service, and knew the naval Service through and through. He could not imagine that any admiral would be content to be responsible for the Fleet as one great fighting unit if he had no direct control over the training, *personnel*, and technique of his Air Force. He did not believe that either the submarine or the aircraft would drive the battleship from the sea, much less cruisers and destroyers.

[Here we have, at any rate, a reasonable and reasoned argument, yet it is stulified by the Admiralty itself which—as Lord Long advocated—is content to let the Air Ministry supply its material, despite Lord Selborne's argument about the Royal Artillery and Naval guns. If the Navy is content to draw its material from the Air Ministry then surely the Air Ministry should train the people to use that material. And, incidentally, if the Navy depended on the Artillery for its guns and its gunners not only would it never have had so thoroughly bad a gun as the notorious 4.7, but its shooting might well be a lot better than it proved itself to be in the late War. But one does cordially agree that naval aviators ought not to be interchangeable with land aviators. The seaplane and ship-plane pilot and observer ought to be specialists in their own line, after passing a certain stage in R.A.F. training. It is too much to expect one man to know all about all the various branches of R.A.F. work. As to training, an Admiral does have control over training R.A.F.

personnel to co-operate with his particular Fleet, if the Admiralty provides his Fleet with an aircraft-carrier, for the R.A.F. personnel of that ship will (if allowed by the Navy) co-operate in all Fleet practice and manœuvres. As to driving ships off the sea, one is still doubtful about capital ships, but one is perfectly certain that one aircraft-carrier properly equipped could clear the sea of quite a number of such vulnerable craft as cruisers and destroyers.]

Lord Gorell's Reply.

Lord Gorell, the able son of an able father, replied in a convincing and well-argued speech which indicated his legal descent. He said the Marquess of Londonderry had stated that the Air Ministry had been suffering under a journalistic war. He would not go quite so far as that. There had been a very great deal of attention paid to the whole question of air power lately, and that was a very hopeful sign. Some of the criticism had been of great assistance. The great bulk of it had been very uninformed. In fact he agreed with the comment made by Lord Weir at a dinner the other day, that most of the comment he read daily in the Press was "usually uninformed, frequently futile, and sometimes arrant nonsense."

Then he made the following notable statement which is quoted from the *Morning Post* :—"He was asked on the previous day why it was that certain journals seemed to have been inspired by personal animus in attacks on the Air Ministry. He gave as a reason that there were certain journals controlled by Lord Rothermere who was for a short period in charge of the Air at the Hotel Cecil. Whilst there Lord Rothermere was in daily contact with the present Air Chief Marshal, who might be described as one of the most inspiring figures in the whole war, and who was certainly distinguished for saying frankly and straightforwardly what he thought. It might be presumed that that straightforwardness and frankness might have ruffled Lord Rothermere, and that he was not able to forget and take a wider than the personal view. His questioner at once replied that he thought from the tone of the attacks there must be some personal animus of that kind."

On this point Lord Gorell said :—"Before I pass from this question of the amount of interest in the public Press, I should like to say that while there are certain writers who show a great deal of experience and knowledge, it is at present the case that a great deal is written by way of comment, and sometimes even by way of technical comment, in the Press by those who know extremely little about the air, and one may venture to hope that, as all the ramifications of air problems become more and more understood in this country, it may become worth the while of important journals to place experts upon their staffs to deal with these questions." This is a piece of advice which all newspapers would do well to follow.

In October last year he went very fully into the cost of a separate Ministry, and also met, as far as he was able, the comment that there were a large proportion of people in the Air Ministry who never flew, and that it afforded no profession for those entering it. He attempted then to show that so far as cost could be estimated at all a separate Air Ministry was less costly than two Services would be, and no answer had been given to the figures he gave.

There was undoubtedly now a great potential menace from the air. If there should be unhappily in the future an outbreak of a great war, we could confidently rely upon the air playing a very much greater part than it did in the last war.

Here Lord Gorell said :—"I cannot, I think, do better than quote what is the weightest pronouncement upon this subject that is known to me. It has been brought once to your Lordships' attention, but it is so important that I think I should repeat it. This is the opinion of Marshal Foch, who writes :—

"'The military mind. . . . (and, if a distinguished Marshal says that, I think I may, without any suggestion of controversy, add the naval mind) always imagines that the next war will be on the same lines as the last. That has never been the case, and never will be. One of the great factors in the next war will obviously be aircraft. The potentialities of aircraft attack on a large scale are almost incalculable, but it is clear that such attack, owing to its crushing moral effect on a nation, may impress public opinion to the point of disarming the Governments and thus become decisive.' I think one might also add that it is fairly obvious that it will be the endeavour of every belligerent Power to put out the maximum air effort in the very first days of the war."

There was a considerable divergence of view as to whether the menace from the air was greater than that from the sea. It must to some extent be hypothetical.

All he could say about the allocation of funds was that the question had been before the Committee of Imperial Defence for a long time, and they were carefully considering the matter. They had seen and heard in the Press comparisons between the air power of this country and the air power of France. Did anyone who had had experience of the past war regard the air power of France as a menace to this country? He absolutely refused to believe the word "menace" in that connexion. Our strength and that of the French would, if necessary, maintain peace and establish it.

Dealing with the distribution of our air squadrons, he said that at present there were in the United Kingdom for home defence, three; co-operating with the Fleet, four; co-operating with the Army, two and a half; for reconnaissance and communications, one; reserve, two, a total of 12½. In the Mediterranean, co-operating with the Fleet, there were 1½: Egypt and Palestine, 4½; Irak, 8; India, 6; a total oversea of 20, and a grand total of 32½.

As regarded criticism for our having so many squadrons oversea, he asked their lordships not to confuse two entirely different issues—one, the distribution of squadrons, and the other, the policy as regarded Irak, Palestine, and so on. The squadrons in the Middle East were paid for out of appropriations in aid provided out of the Middle East Vote, so that it was not unfair to say that, but for that policy which called them into existence, they would not be there at all.

It had been said that the three squadrons for home defence were utterly inadequate, but what would have been said, during the clamour for demobilisation, if, after the war, they had retained a large number of squadrons in existence? In retaining no more squadrons than they did, they were not following an Air Ministry policy or even a Government policy, but obeying the demands of the nation that they should meet the commitments of the British Empire.

As regarded ground organisation, during the war it took 86 men on the ground to keep one machine in commission in the air. That number had been considerably reduced, but it must always be large.

As to the cost of squadrons, the total estimated expenditure on the Royal Air Force, including India, for 1922-23 was £15,177,500, for 32 squadrons, which was roughly £474,300 each. If they added 20 squadrons at home to these, the total cost would be £17,227,000 for 52 squadrons, and the cost per squadron would be roughly £331,300. If the number were increased to 100 squadrons, the total cost would be £24,000,000, or £240,000 per squadron. So that the larger the organisation was, the less relatively the overhead charges were.

After defending the policy of the Ministry in regard to buildings, he dealt with the relations of the Air Force and the Navy. There were in co-operation with the Navy, employed on reconnaissance, spotting, torpedo-carrying, and bombing, 62 machines, and in training, etc., 21, a total of 83. In addition, there were reserve machines to cover replacement 46, and reserve in store 229, giving a total of 275, making a grand total of 358 machines.

As to the Army, there had been definitely allotted 28 machines, and there were 45 machines upon which the Army could call for co-operation, while an addition of 18 were available in urgent circumstances, and 20 for training, making a total of 111. In addition, there were 60 held as a first reserve, and 6 more were available for assistance in field training. These figures could be varied according to the requirements of the Army and Navy.

The Army and the Navy had the fullest operational control over the units allotted to them. It was an entire travesty of the facts to say that naval and military commanders had no responsibility for them. The Geddes Committee recommended that the aircraft available for co-operation with the Navy should be cut down from 6½ squadrons to 2. The Navy at present had 5½ squadrons, which was a "cut" of one. The Committee recommended in regard to the Army that the aircraft should be "cut" from 3 squadrons to 1. The Army had 2½ squadrons, a "cut" of ½.

There were more squadrons allocated for co-operation with the Navy than there were for independent work—preference had been given for the requirements of the Navy. But for the existence of the Air Ministry, there would not have been so many aircraft available for the Navy. He hoped no more would be heard of reversion to an expensive and disastrous duality.

As to the policy of reconditioning old machines, he maintained that it was the outcome of a national demand for economy. That policy was now beginning naturally to come to an end; and in the near future it would be necessary to ask for money for the purchase of new machines.

Here Lord Gorell said :—"There is another consideration in this connection. The Air is still a very young Service and there are constant developments. I noticed in one of the expert papers the following comment by Mr. C. G. Grey, who at any rate is an expert on technical matters—Designs and the ideas of designers are changing as quickly to-day as they did during the War and before it. We do not even

know whether our machines should be cantilever monoplanes or braced biplanes or cantilever biplanes.'

"Without necessarily agreeing that we do not know so much as that, I think it is quite obvious that a policy of ordering machines on a large scale which would go out of date quickly could not possibly have been justified to-day."

He thought that air power could fairly claim to-day that it could prevent any invasion on a large scale by sea.

As a general proposition, it could fairly be said that this country was ahead both in thought and design. As far as our experimental types were concerned, the position was absolutely satisfactory with regard to other countries, and very great progress was being made.

Speaking of the policy of the substitution of air force for other force, he contended that the progress made had not been bad, but we must be careful not to go too fast. Where the new force was more efficient for the same expense, or equally efficient for less expense, it was the intention of the Government to use air force.

Turning to Civil Aviation, Lord Gorell said :—"I think more nonsense, on the whole, is talked about civil aviation than about almost any branch connected with the Air Ministry. I will give you one example. I saw it stated the other day, by someone whom one would have thought quite responsible, that obviously people trained in civil aviation would be more useful in War than those who had been trained in the Royal Air Force because in civil aviation they fly every day. He ignored the fact that in civil aviation you fly at 5,000 feet at the highest, with all the conditions of safety possible. If there is any danger in the route it is at once laid at the door of the Ministry to remove. The airman who flies in war will have to be trained specially in formation flying, in flying at great heights, flying by night and without lights."

They wanted a healthy civil aviation from the industry and the machinery point of view, but the first question was how far it could help the defence of the country. How much was it worth while to pay towards it in order to make it a reserve for Service aviation? It was probable some new arrangement would have to be made in regard to the cross-Channel services in order to obviate loss.

He had been assured by a prominent member of the aircraft industry that they would rather that whatever money was available was spent wholly on Service aviation. They had, therefore, to beware of adopting broadcast the suggestion that by subsidising civil aviation they promoted the power of defence.

The Government not only had a definite air policy, but it had a sane policy, namely, to avoid expense as far as that was justifiable and to build up the nucleus of a very efficient organisation which would be capable of expansion.

An Editorial Comment.

[Regular readers of this paper will recognise the fact that Lord Gorell's speech agrees in every particular with the views set forth for many months back in The Aeroplane. One cannot claim to have had any inside information on these subjects nor does one pretend to any knowledge of aviation, international politics or the science of war which is not available to any other observer of events. One has merely endeavoured to follow the course of affairs to its logical conclusion in the light of common sense. It is therefore the more consoling to find that the Air Ministry policy is so close to that in favour of which one has argued for so long.

The information given as to the cost of squadrons is highly enlightening and one hopes that juvenile Squadron-Leaders who are inclined to take their responsibilities lightly will in future pay due regard to the fact that they are responsible for the efficiency of a unit on which nearly half a million pounds is being expended annually. The reduction of cost by increasing the numbers reminds one somewhat of the Irishman who seeing an advertisement "Buy a So-and-So Stove and Save Half Your Coal," remarked to his wife, "Begad! We'll buy *two*, me jewel, and save it all!" Undoubtedly if we could run to 100 squadrons, which would cost just about one-third of the Navy's Vote of something over £70,000,000, if we did not save all our cost of Imperial Defence we could certainly save a great deal of the money which is at present being wasted on ships and their personnel for work which the R.A.F. could do better and quicker.

Both the flying personnel of the R.A.F. and the Aircraft Trade will be glad to see that the re-conditioning of aeroplanes is to end and that new machines are to be bought. One can only hope that the buying will begin before the whole Trade goes out of business.

On the Civil Aviation question the official policy is equally sound. This is a matter with which one hopes to deal at a later date. Personally, one believes as firmly in the future of Civil Aviation as do any of the owners or operators of air lines, perhaps more firmly than some. But the policy advocated by Brig.-Gen. P. R. C. Groves in his recurrent articles, which read much more like a personal attack on the Air Council than like the reasoned conclusions of an intelligent advocate of Civil Aviation, is not only silly but would, if those in authority were weak enough to be influenced by his tirades, be positively harmful to British Aviation.

Altogether, Lord Gorell's speech is the happiest augury for British Aviation which has appeared since the War from those who sit in High Places. He personally deserves sincere congratulations on his good work, but the thanks of the British Empire in general and of the Aeronautical Community in particular are due to the Air Council which has so guided the course of history as to make such a speech possible.—C. G. G.]

THE INCREASE OF THE R.A.F.

A meeting of the Committee of Imperial Defence was held on July 31st, with Mr. Lloyd George as President, to consider the requirements of the R.A.F. and the representations made by the Admiralty and the War Office as to the air Units attached to the Navy and Army. It is understood that though the investigation of the subject has not been completed, certain important conclusions have been reached.

The most important is that the strength of the R.A.F. must be increased without delay. From several sources it is gathered that the increase will be larger than was generally expected, certainly in excess of the original ten squadrons and possibly up to the twenty squadrons desired by the R.A.F. It has also been settled that there is to be no interference with the Air Ministry's control of the R.A.F., but the question as to whether the Navy will be permitted to control a certain number of aircraft provided out of its own estimates has still to be decided.

It is understood that the final settlement of these questions rests with the Cabinet when considering the recommendations of the Committee of Imperial Defence

THE RECONSTITUTION OF THE AIR COUNCIL.

The Air Ministry announced on July 31st :—

An Order in Council to be published shortly enacts that the Air Council shall consist of the following members :—

One of His Majesty's Principal Secretaries of State, who shall be President of the Air Council.

The Parliamentary Under Secretary of State for Air.

The Chief of the Air Staff.

Air Member for Personnel.

Air Member for Supply and Research.

The Secretary of the Air Ministry.

The main intention of the New Order in Council, which replaces that of the 13th October, 1920, is to redistribute the business of the Air Council and adapt the organisation of the Air Ministry in such a way as to meet new requirements and increased responsibilities, and in particular to relieve the Chief of the Air Staff of some portions of the detailed administration of the Royal Air Force, which were previously under his direct control.

The main changes are as follows :—

(1) The title of Air Member is given to each of the Members of Council serving in offices held by officers of the Royal Air Force, and the Chief of the Air Staff is described as the first and senior Air Member of Council and principal adviser to the Secretary of State in the direction of the Air Force.

(2) Subject to (1) above the Air Member for Personnel will be responsible to the Secretary of State for the administration of business relating to the personnel, discipline and organisation of the Air Force, and the Air Member for Supply and Research (lately Director General of Supply and Research) will, in addition to the business already allocated to him under the previous Order in Council, be responsible to the Secretary of State for the administration of business relating to the equipment of the Air Force.

The Order also provides, having regard to the recent termination of the post of Controller General of Civil Aviation, and its replacement by a post of Director of Civil Aviation responsible to the Parliamentary Under Secretary of State, that the Under Secretary of State shall in turn be responsible to the Secretary of State for business relating to Civil Aviation.

The Air Council, as reconstituted, is composed as follows :—

Secretary of State and President of the Air Council : Capt. the Rt. Hon. F. E. Guest, C.B.E., D.S.O., M.P.

Parliamentary Under Secretary of State and Vice-President of the Air Council : The Rt. Hon. Lord Gorell, C.B.E., M.C.

Chief of Air Staff and Senior Air Member of Council : Air Chief Marshal Sir H. M. Trenchard, Bart., K.C.B., D.S.O., A.D.C.

Air Member for Personnel : Air Vice-Marshal O. Swann, C.B., C.B.E.

Air Member for Supply and Research : Air Vice-Marshal Sir W. G. H. Salmond, K.C.M.G., C.B., D.S.O., p.s.c.

Secretary : Sir W. F. Nicholson, K.C.B.

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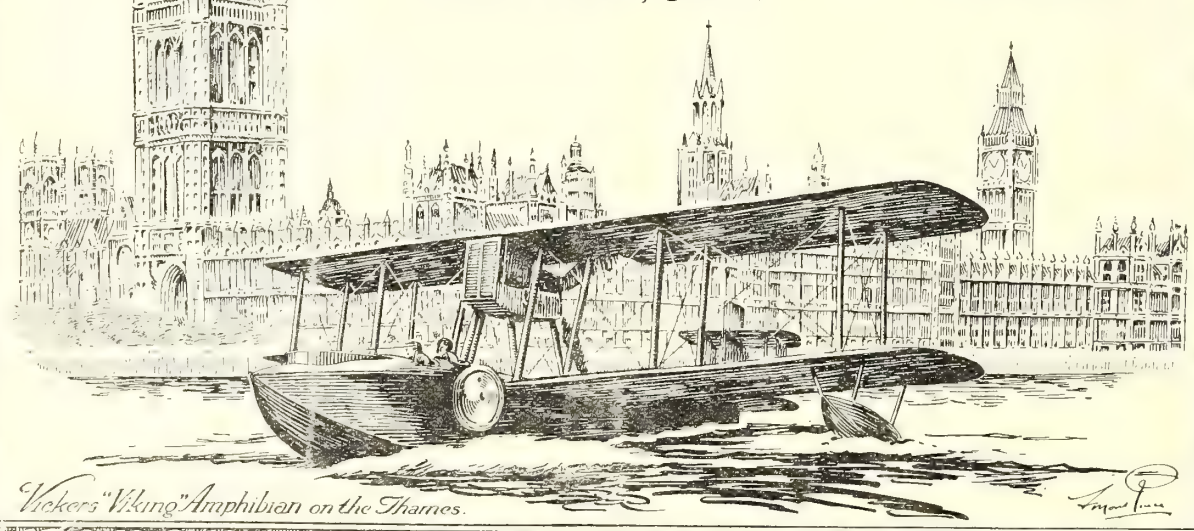
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THE WEEKLY COMMENTARY.

There is given below an account of the history and of the equipment of the Aerodynamic Loboratory at Göttingen. This laboratory, which owes its existence very largely to the efforts of Prof. Prandtl, has carried on work which has led to the first approach to a really satisfactory theory of the aerodynamics of the aerofoil.

It is perfectly true that the general outline of this particular theory was advanced by Mr. F. W. Lanchester in England many years ago, but it has been left to the scientific staff at Göttingen to develop that theory, and to check its applicability to facts by systematic experiment, in such a manner that the value of the theory is now admitted by aerodynamical authorities over the whole world.

As the general type of equipment used is in many respects different from the type of wind channel usual in this country, a fairly detailed description of the plant will doubtless be of interest. It is hoped that it will be possible in the near future to render some accounts of the results obtained at Göttingen, in a form which should be readily comprehensible.

Attention is drawn to the notices of three international events which are to take place in the future. At one of these—the International Conference—British interests will certainly be well represented. The importance of representation at meetings out of Britain and the difficulty of securing such representation under present financial conditions are subjects for serious consideration.

THE GOTTINGEN AERODYNAMICAL LABORATORY.

The Aerodynamic Laboratory at Göttingen is now one of the most important institutions of its kind in the world. Like other aerodynamical laboratories it has produced a very large quantity of statistical data of direct use to the designers of aircraft, but it has also given to the world an extraordinarily ingenious and in many respects a highly satisfactory and useful theory of the action of aerofoils which is certainly likely to accelerate the acquisition of aerodynamical knowledge in the future.

Some account of its history, of its eqripment, and its work should therefore be of considerable interest. The following information is mainly derived from a papei read by Prof. Prandtl before the "Wissenschaftliche Gesellschaft für Luftfahrt" and from a volume entitled "Ergebnisse der Aerodynamische Versuchsanstalt" (Results from the Aerodynamical Laboratory) by the same author.

The Beginnings of Gottingen.

In 1906 Drs. Felix Klein and E. Altdorf, professors of mathematics and physics at Göttingen, founded a "Motorluftschiff Studiengesellschaft" (Society for airship study) Prof. Prandtl was electe l to the Technical Committee of the Society and at once pointed out the need for model experiments, such as were made on ship models in water tanks. The suggestion met with favour, and a sum of 20,000 marks was raised. With this sum the first Göttingen aerodynamical laboratory was put into construction in 1907 and was completed in 1908.

This laboratory consisted of a small wind channel, generally of the Eiffel type, giving a parallel stream through the experimental chamber of about 1.25 m. dia. and capable of a speed of 10 metres per sec. The installation was regarded as of a temporary nature, and intended to supply experience for a more extensive testing plant.

The New Laboratory.

In 1911 Prof. Prandtl wrote an appeal for the provision of a more complete equipment, justifying it by the results obtained in the small channel, and succeeded in interesting the "Kaiser Wilhelm Stiffnung zur Forderung der Wissenschaften" (Kaiser Wilhelm Fund for the Advancement of the Sciences) and just before the outbreak of war all arrangements were made to carry out the enlargement.

A short war was expected and it was not imagined that intensive experimental work on aerodynamics would be required for its prosecution, and the project was dropped. In 1915 it was realised that an error had been made, and an appropriation of 200,000 marks was obtained from the War Administration. This sum was later increased to 300,000 marks, and the new laboratory was put in hand on a scale even larger then that projected in 1912.

Building started in the autumn of 1915, the first tests were made in the new tunnel in the spring of 1917, and from then to the end of the war the plant was in constant use. At the end of the war a total of 50 persons were employed.

This new laboratory consists of a handsome substantial building of reinforced concrete, with the wind tunnel itself built into the ground floor and basement. The building contains, in addition, the necessary offices, workshops and caretaker's apartments. A sectional plan and elevation of the buildings is given herewith. The original small wind channel was dismantled in 1918 and has now been re-erected in an annex to the new building. The new wind tunnel is of the closed circuit type with the return circuit arranged below the experimental chamber. Curved guide vanes of aerofoil-like section are arranged at the corners of the channel in order to give a minimum of eddying at these positions. The experimental chamber is open to the main hall of the building—this being rendered possible by the fact that the remainder of the air circuit is closed. Consequently access to the experimental chamber can be obtained without the necessity for passing air lock doors, etc.

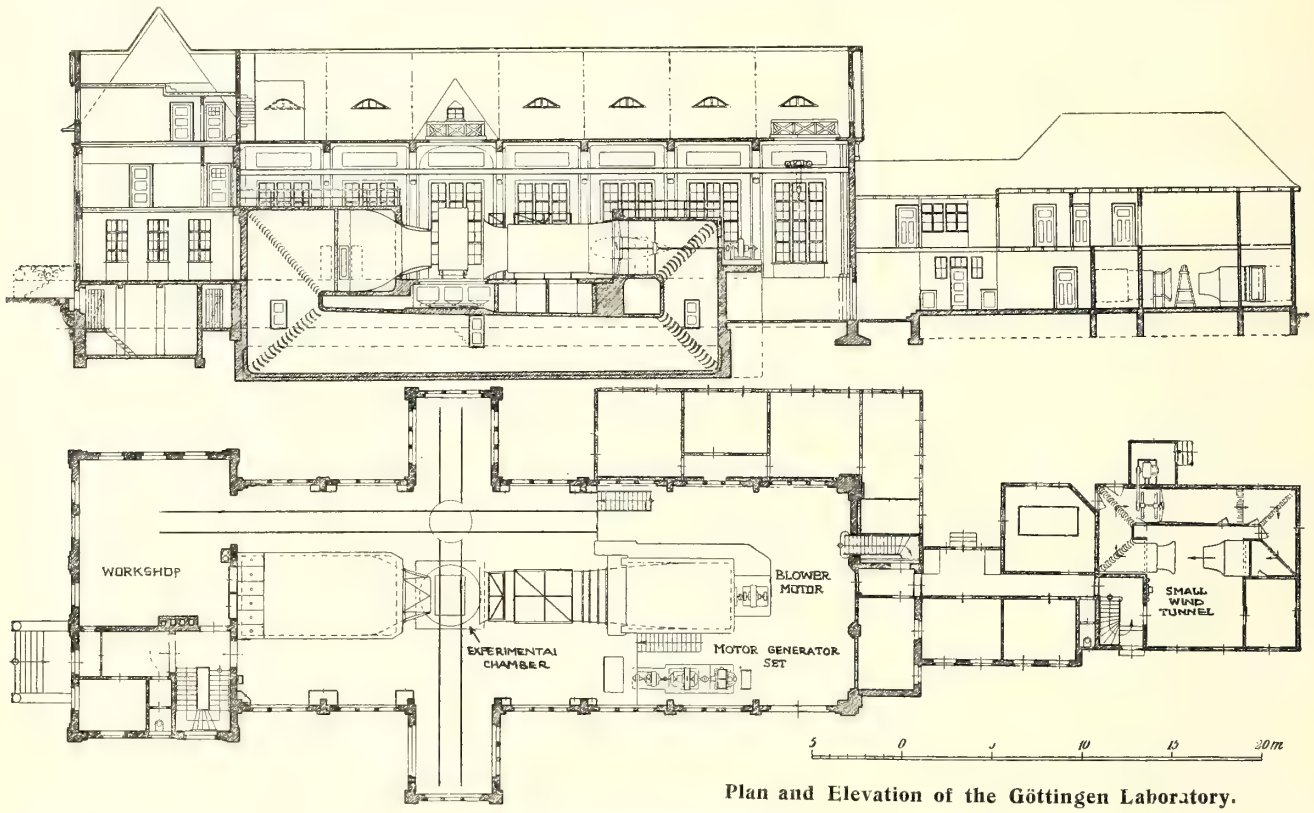
The cross section of the main channel is very large, so that the flow velocity is relatively low. This section is reduced at the entrance to the experimental chamber by an entrance cone whose exit diameter is 2.4 metres. This cone is adjustable so that the air stream can be made to be perfectly horizontal on emergence.

High Speed and Steadiness of Flow.

On account of the reduction of area from the main channel to the cone exit, which is of the order of 5 to 1, the velocity in the experimental chamber is five times greater than in the channel. This reduces greatly the power required to attain a given speed, and has a further advantage of increasing the steadiness of flow. For irregularities in speed represent irregularities of momentum of the stream, and the variations in momentum will not be increased by increase of speed. One per cent. speed variation in the channel means two per cent. variation of momentum. But the momentum in the experimental chamber is 25 times as great, and the same variation of momentum will produce only one twenty-fifth per cent. change of the higher speed.

To secure the highest possibble uniformity of flow a honeycomb, with cells of only about 1 in. diameter, is fitted just before the beginning of the cone. This is in a position of minimum air velocity and thus makes for the least possible energy loss.

After passing the open experimental chamber the air stream



Plan and Elevation of the Göttingen Laboratory.

is collected by a double cone and passes to the fan and is then recirculated.

The fan is of the airscrew type, four bladed, 3 metres diameter and of about 2 metres pitch. This fan is fitted with a large streamline boss of 1.2 metres diameter, and is driven by a long shaft from an electric motor situated outside the end wall of the channel.

The Power Plant.

The electric power supply at Göttingen is alternating three phase current of 50 periods per second, and is therefore only suitable for practically constant speed motors. The power plant installation is, therefore, somewhat complex, as it is essential that the speed of the fan should be adjustable over a wide range by very fine steps.

This installation consists of a motor generator, converting three phase current at 5,200 volts to direct current at any voltage up to 440 volts. This set is of a capacity of 250 kw. The generator is separately excited by a small 220 volt generator driven from the main motor generator set, which said generator serves to excite the fields of all the direct current motors and generators.

The fan is driven by a 225 kw. motor capable of driving the fan at 1,000 r.p.m. There is, in addition, a second direct current system consisting of a 52 kw. generator and a 40 kw. motor which are used for driving model aircsrews under test. These two entirely different systems for the two purposes are necessary to allow independent variation in the speeds of the air current in the channel and of an airscrew under test over the full range of either speed.

The maximum load taken by the fan being about 300 h.p., it is necessary to preclude the possibility of sudden great changes in the load, as the capacity of the central station is quite small, and a sudden call for the full 300 h.p. would seriously disturb the pressure regulation.

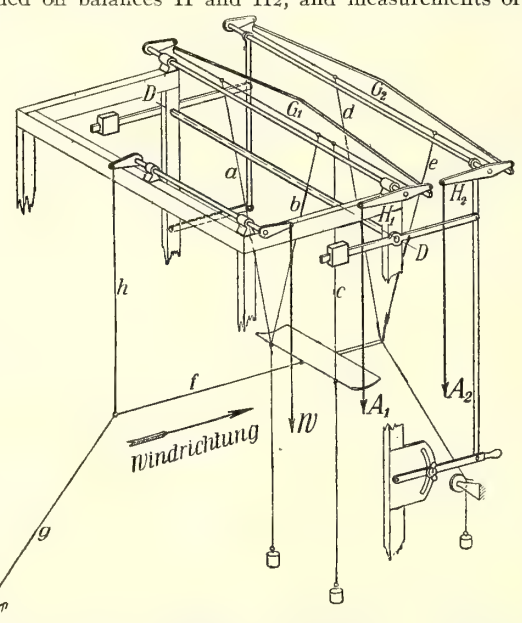
The Automatic Regulator.

The fan speed is controlled by an automatic regulator, which consists of an air pressure balance which controls the field circuits of the generator and motor through relays. The air pressure in the closed circuit of the channel is a function of the speed, and this pressure, acting on one arm of a balance, is balanced by adjustable weights. Any change in air velocity, and consequently of pressure, will disturb the balance in one sense or another, and thus close contacts in relay circuits which relays in turn operate adjustable resistances in the field circuits of the generators and motors in such a manner as to restore the original speed. By changing the weights attached to the balance the speed is automatically adjusted to produce a new equilibrium. It is only necessary to establish once and for all a set of weights corresponding to definite speeds, place the required weight on the balance, and press a button to start the fan motor. The regulator automatically does the rest, and it is so arranged as to avoid sudden changes in load on the power supply system. Owing to the very great speed range necessary—5 to 50 metres a second—corresponding to speeds of revolution of approximately the same ratio—very considerable practical difficulties were encountered in the prodution of this regulator, but the difficulties have been overcome and the device is said to be extremely satisfactory.

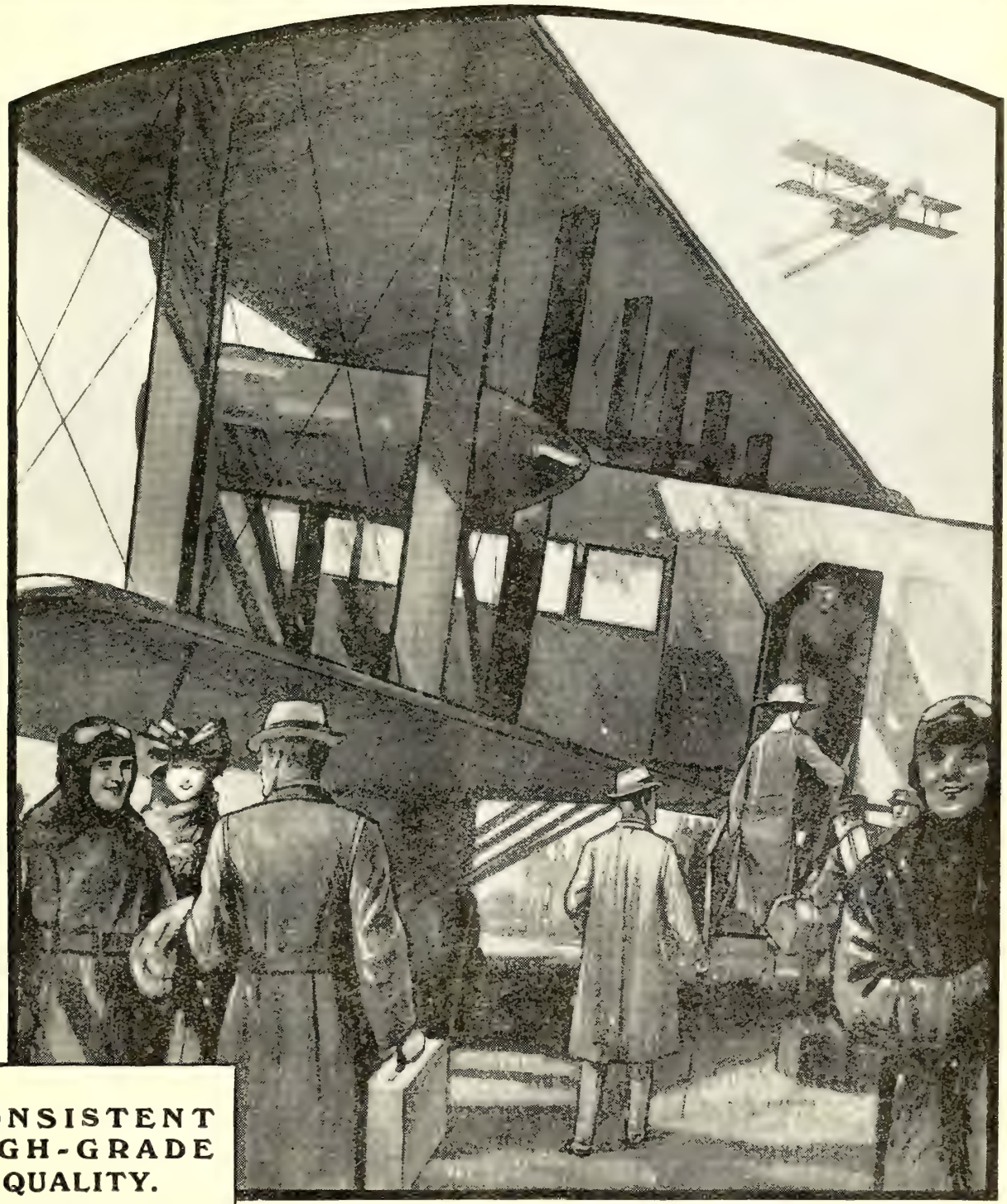
The Three Component Balance.

The chief measuring device used in this tunnel is a three component balance of somewhat novel character. Aerofoil models, etc., are suspended by wires, generally upside down, so that the lift forces keep the suspension wires tight.

The balance is diagrammatically shown in a sketch attached. It consists of two independent bridges, G1 and G2, carried above the air stream. The leading edge of the model is suspended by three wires (a, b, and c) from G1, and the rear edge by two other wires (d and e) from G2. Small weights depend from the front and rear to keep the wires tight initially. A horizontal wire runs forward from the model and transmits drag to wires g and h, of which g is anchored to the floor. The two bridges, G1 and G2, are suspended on balances H and H2, and measurements of the



General Scheme of the Balance at Göttingen (Windrichtung—wind direction).



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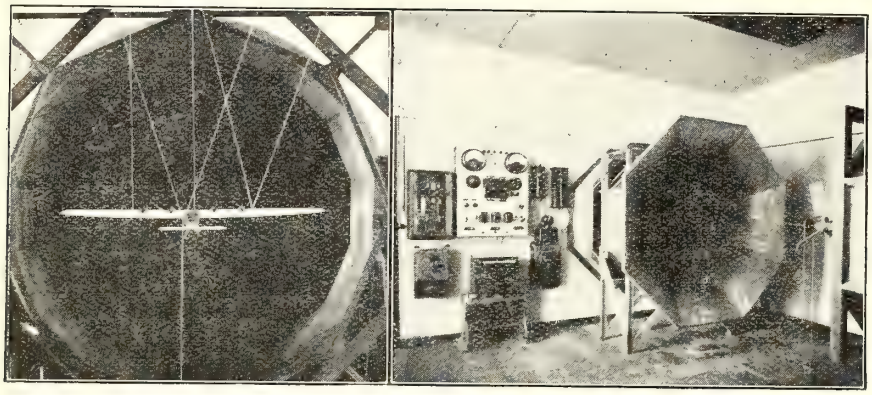
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THE GOTTINGEN WIND TUNNELS.—On the left is the model of the Zeppelin-Staaken four-engined monoplane in position for test. All the suspension wires shown in the diagram on the previous page can be traced, except the horizontal drag wire. On the right is shown the experimental chamber of the original small wind tunnel as re-erected in the new buildings. The gear on the left is the regulating mechanism for the fan motor.

forces, A and A2, allow complete determination of lift and of lift moment.

The wire h transmits a drag component to the separate balance arm at the front of the assembly, and from the valve of the force n drag is computed.

The rear bridge, G2, is carried on arms pivoted at d, and may be moved by the aid of the hand lever at the lower right hand corner. The angle of attack of the model is thus instantly regulable.

A photograph reproduced shows a model of the four-engine Zeppelin-Staaken monoplane suspended from the balance. In this the wires have been retouched to render them visible—they are actually only of one seventy-fifth to one fiftieth inch diameter.

An airscrew testing balance of a novel form is also part of the equipment. In general the measurement of airscrew performance involves mechanical difficulties with sliding couplings of one kind or another. In this airscrew balance the motor and the airscrew drive are all mounted on a float in a tank on the floor. The motor is at the base of the float and drives through two bevel gears and a vertical shaft the airscrew shaft. This latter shaft slides through castellations, or a similar driving device, in the final bevel, and thrust measurements are made directly from the end of the shaft. The torque moment is measured directly from the float frame itself.

The balance is designed to test airscrews up to one metre diameter and to drive such screws at speeds as high as 5,000 r.p.m.

The whole wind tunnel was designed as the result of tests on model channels made by Dr. Betz. It was intended to develop a wind speed of 54 metres per second (120 m.p.h.) and it has shown itself able to reach 60 metres per second. It is claimed that the steadiness of flow is all that can be desired, and in view of the very high speeds attainable it is possible to reach considerably closer to full scale conditions than in any previous tunnel. In practice the extreme speed is not used for routine work, as the cost of power supply is a serious expense and for most purposes 30 metres per second is sufficient.

The main hall of the building is fitted with a four ton travelling crane, and a light railway track and turntable are also installed. Heavy apparatus, such as the airscrew balance, can thus be moved with great ease into position in the test space. Both the three component balance and the airscrew balance are mounted to run in on the rails into position, so that fitting up models for test can be carried on without interference with other tests which may be in progress in the channel.

THE PROGRESS OF CIVIL AVIATION.

The Directorate of Civil Aviation has just issued the usual half-yearly report dealing with the "Progress of Civil Aviation between October 1st, 1921, and March 31st, 1922." Naturally this report contains nothing that is of any great interest as news, but it contains the usual tables of statistics of aerial traffic during that period, and gives comparisons with the statistics of previous years.

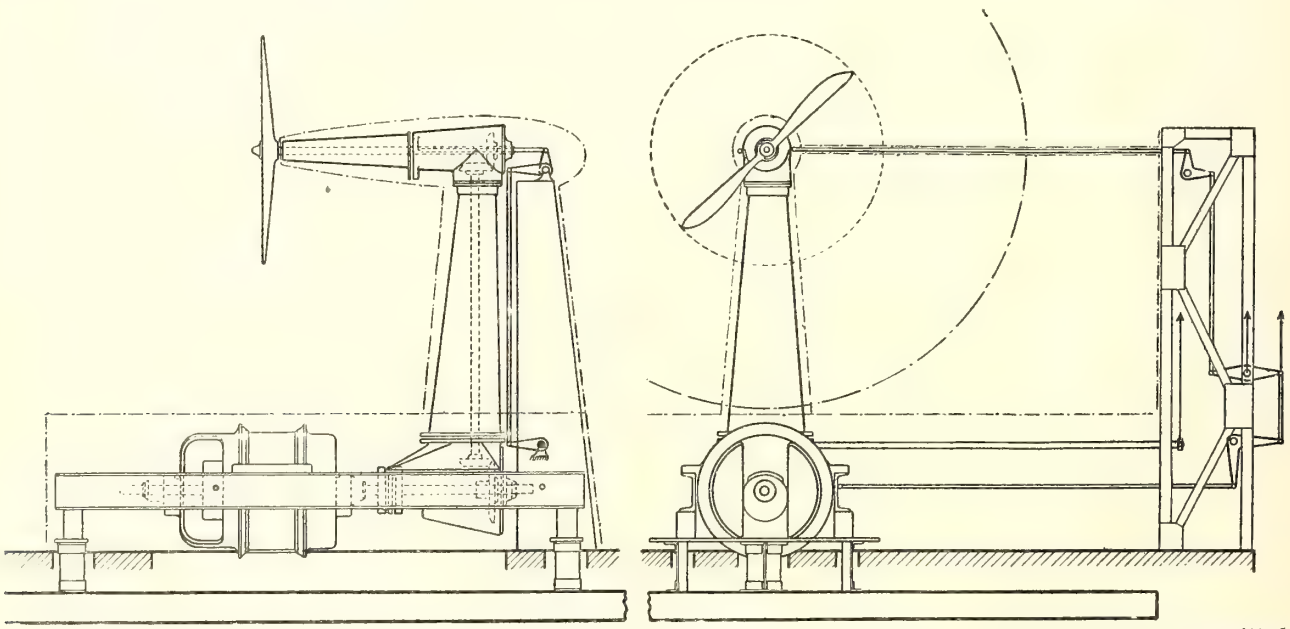
On the whole these statistics are of a satisfying nature. The evidence of a tendency for passengers to prefer British aircraft to those of other nations when an alternative exists is entirely satisfactory.

The statistics as to casualties, based as they are upon so small a volume of traffic, are useless for any estimate of the safety of air travel as compared to other methods of transport, but indicate that there is a general tendency to increasing safety. The figures as to regularity of service are also satisfactory in that they show consistent improvement.

The figures for mails and goods between London and Paris show a steady fall in numbers and weight, from which it may fairly safely be argued that this particular service as it is now run has very little value for mail or parcels purposes.

The report on British activities is supplemented by short statements of air traffic developments during the same period in the chief States of the world.

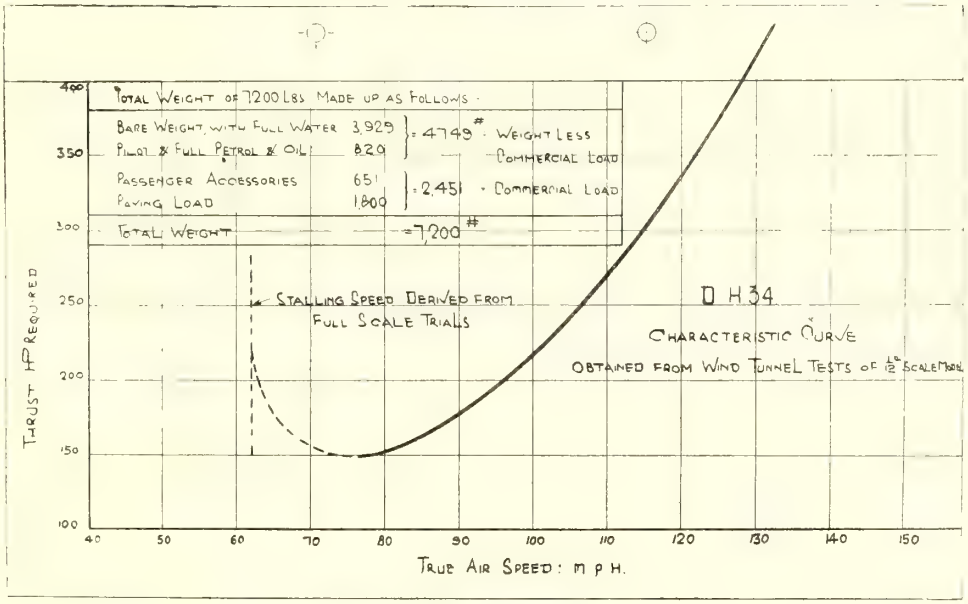
The Report (Cmd. 1710) is published by H.M. Stationery Office, price 6d. net, through any bookseller, or post free for 7½d. from H.M. Stationery Office, Kingsway, W.C.2.



The Airscrew testing balance used at Göttingen, showing on the right how the torque on the floating base is transmitted to the measuring instrument.

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HOLT & CO.'S CLAIM.

Holt and Co., Army and Air Force agents, brought an action in the King's Bench Division against Lt.-Col. Reginald Gascoigne Law Markham, well known to many readers of this paper as a partner, before the War, in Markham and Prance, to recover £297 claimed to have been over-issued in respect of gratuity. The case was heard before Mr. Justice Lush on July 27th and 28th.

Mr. Holman Gregory, K.C., said that Col. Markham was an engineer officer in the Navy from 1898 to 1913. In 1913 he resigned without a pension, and was placed on the Emergency list. He was called up in 1914 for service with the R.N.A.S., and was afterwards transferred to the R.A.F. Plaintiffs had paid him a gratuity of £744, as if he had been a temporary officer, whereas, as an officer on the emergency list, holding a temporary commission, they should have paid him only £310.

Had he remained with the Navy, the sum would have been £446, and, as a concession, the Air Ministry was ready to allow him that sum. The plaintiffs claimed the sum of £297 12s., difference between the latter sum and the amount actually paid.

The mistake arose through the great pressure on Holt and Co.'s staff at a time when large numbers of officers were clamouring simultaneously for their gratuities.

After some discussion, the learned Judge said that although he did not complain of the bank attempting to recover if a genuine mistake had been made, he was surprised at the ultimate authority, which, he supposed was a Government Department, taking such a line.

Sir Malcolm Macnaughten, K.C., for the defendant, said that no mortal man could understand from the rules and regulations what gratuity Col. Markham was entitled to. His points would be that there had been no mistake, and that his client was entitled to the sum received. If there was a mistake it was the fault of the plaintiffs in their reading of the rules and regulations. The defendant answered truthfully all the questions asked on the application form for a gratuity and sent it to the plaintiffs, who, having the regulations before them, came to a decision which they could not now reverse.

The learned Judge said that if Sir M. Macnaughten satisfied him that Holt and Co. had made a mistake in construing the documents under which they paid he owned that he could not see how they could recover.

Mr. Holman Gregory, K.C., pointed out that Col. Markham had received more money than most other officers who had served in the Army or Navy, and must have known that others were getting less.

Sir M. Macnaughten observed that if the amount was exceptional, the plaintiffs' blunder was the more inexcusable.

Lt.-Col. Markham gave evidence as to the circumstances under which he applied for his gratuity, and as to the various forms which he filled up. He had expended the whole of the money received, most of it in an unfortunate investment. If the decision in the case went against him, he would have no alternative but to file a petition in bankruptcy.

Mr. Gregory said that it was with great reluctance that Holt and Co. took these proceedings. They had made every endeavour to get some acknowledgment that the amount paid in error was recoverable, and they had even offered to accept it by instalments if he was unable to repay the whole. He submitted that he was clearly entitled to the return of the money paid in excess under a mistake of fact.

Mr. Justice Lush gave his judgment on July 31st.

He said that this was an interesting, but complex and difficult case. It seemed a little curious that because the defendant volunteered his services in 1913, he should be deprived, under the Regulations, of a sum to which he would have been entitled had he not taken so patriotic a course. The money was paid over in 1919, and it was not until February, 1921, that the bank first suggested that he had been paid too much and made the claim upon him. By that time the whole of the money had been expended in an unfortunate investment and if he were ordered to refund it now he would find himself in bankruptcy. The hardship was a real one, but the bank could not be deprived of their right to recovery simply because hardship would result.

The questions which he had to decide were:—Did the defendant receive £297 12s. more than he was entitled to: if so was the excess paid under a mistake of fact; and, were the circumstances such that plaintiffs could recover the sum as money had and received?

The application for gratuity was made by defendant by means of a form on which he answered all questions correctly. He was not asked to state whether he had been on the Emergency List. Plaintiffs had the papers before them showing that Lt.-Col. Markham was on the Emergency List. The defendants had not satisfied him that they had made a mistake of fact.

If the plaintiffs paid under a mistaken view of the Regulations clearly they could not recover as it was a mistake of law, or analogous thereto. He drew the inference from plaintiffs' evidence and upon the correspondence with the Air Ministry that plaintiffs had the means at hand to inform themselves of the defendant's position on the Emergency List.

To support such an action as the present, even if there were a mistake in fact it must be shown that it would be against "equity, justice and good conscience" for the defendant to retain the money. In this case the contrary would be the case. The plaintiffs' duty was to have informed Col. Markham that he was only entitled to the smaller sum and they had failed in this duty. It was owing to their lack of care that the overpayment occurred.

As a matter of discipline it might be necessary for an officer to study the innumerable orders issued, but as a matter of justice and common sense he would decline to hold that it was the defendant's duty as between himself and the bank to make himself acquainted with the innumerable orders issued almost daily on every conceivable manner of subject.

He would, therefore, in all the circumstances give judgment for the defendant with costs.

A stay of execution was granted to the plaintiffs.

[It should be pointed out that the above decision against Holt and Co. covers a case which differs in detail from the larger number of claims preferred by this firm against former Technical Officers of the Flying Services who did duty under the Air Board before the formation of the R.A.F. Also that there is a possibility of an appeal from Mr. Justice Lush's decision.

Comment on this particular affair is not at the moment desirable, and in view of the Judge's clearly shown opinions scarcely necessary. But it may reasonably be hoped that officers concerned in similar claims will not be further distressed by this particular firm.—Ed.]

THE LONDON AIR DEFENCES.

Capt. the Rt. Hon. F. E. Guest in a speech last March stated that Biggin Hill Aerodrome was to be made into a School of Anti-Aircraft Co-operation.

It has been stated that the famous 56 Squadron is on its way home from the East and will be stationed at Biggin Hill. As a matter of fact, No. 56 Squadron is being disbanded in Egypt, most of its personnel expect to be sent to Iraq to relieve the personnel of No. 1 Squadron, and it is possible that a cadre of No. 56 may come home as a nucleus for a new squadron to be numbered 56 and to be composed as far as possible of officers who served in the original 56 during the war.

In conjunction with 56 Squadron will be No. 25 Squadron, now at Hawkinge, and No. 100 Squadron at Spittlegate. No. 25 is to have big bombers and will be the nucleus of an offensive-defensive force, to attack the enemy's capital on the outbreak of war; No. 100 is said to be fighting two-seaters to attend to invaders from the direction of the Baltic.

One gathers that these three squadrons will in due course carry out night practice operations in connection with the attack and defence of London.

GERMANY'S RETORT.

It used to be said by the ignorant during the War that the German has no sense of humour. Those who saw the German humorous papers of the period of course hold a different opinion, but others will do well to note the latest official act of the German Civil Aviation authority.

A report from Berlin, dated July 28th, states that a note dated June 23rd, addressed to the Swiss, Dutch, Danish, Norwegian and Swedish Governments, and published on July 28th, decrees that as Germany has accepted the ruling of the Council of Ambassadors of May 6th, 1922, which permits her to build aeroplanes for civil use only and imposes certain definite restrictions as to size, power and performance on those aeroplanes, Germany is obliged to impose the same restrictions on foreign aeroplanes flying over Germany.

One congratulates the German air authorities on this delightful retort to the foolishness of the Allied Authorities. Naturally all the small countries round Germany such as those mentioned, with the addition of Czecho-Slovakia and Poland and a few other comic nations, are so placed that if they are to run air lines successfully they are practically obliged to run them into or across Germany. Under the International Air Convention each country owns the air above it and is at liberty to impose restrictions on foreign aircraft using that air. Consequently, Germany is quite within her rights in this new regulation, which practically means that if Germany is not permitted to build high-performance aircraft the surrounding small nations will be unable to do so.

The German Association of Aircraft Manufacturers is also to be congratulated on the decision of the Reichsrath to compensate the Association for the loss suffered in consequence of the Allies' prohibition against building really useful aircraft in Germany. According to the *Times* of July 28th, the German Government is to pay the Association 150,000,000 marks.

COMMERCIAL AERONAUTICS.

The London Terminal Aerodrome.

CONTINENTAL ARRIVALS AND DEPARTURES.

ABBREVIATIONS :—A.D.—Aircraft Disposal Co. B.A. Berkshire Aviation Co. B.C.—Bristol Aeroplane Co. C.A.—Department of Civil Aviation. D.A.—Daimler Airway. D.H.—De Havilland Aircraft Co. G.E.—Compagnie des Grands Express Aeriens. H.P.—Handley Page Transport Ltd. I.L.—Instone Air Line. K.L.—Koninklijke Luchtvaart Maatschappij. L.A.—Leatherhead Aviation Services. M.A.—Messageries Aeriennes. M.W.—Marconi Wireless Telegraph Co. Ltd. P.O.—Privately owned. P.L.—Petters Ltd. S.F.—Surrey Flying Services.

ANALYSIS OF FIGURES.

Number of trips made during week.—I.L. 40, H.P. 12, D.A. 28, M.A. 32, G.E. 12, K.L. 24.

Number of passengers carried.—I.L. 131, H.P. 75, D.A. 80, M.A. 31, G.E. 20, K.L. 21, D.H. 8.

Total number of trips by British machines : 91 carrying 294 passengers.

Total number of trips by foreign machines : 68 carrying 72 passengers.

Trips per day.—Monday 24; Tuesday 29; Wednesday 25; Thursday 26; Friday 27; Saturday 28; Sunday 0.

STATISTICS.

Machines, 159; Passengers, 366; Crews, 251; Total Personnel, 617

Corresponding week last year :—

Machines, 101; Passengers, 460; Crews, 126; Total Personnel, 586

Corresponding week, 1920 :—

Machines, 82; Passengers, 175; Crews, 104; Total Personnel, 279

NOTES OF THE WEEK.

The Aircraft Disposal Company have been preparing a Martinsyde and an S.E.5a which Capt. Rex Stocken and Mr. H. H. Perry will fly in the Aerial Derby on Monday. Mr. Perry has just returned from Rumania, where he has been on behalf of the Disposal Company.

On Monday Capt. Stocken took three D.H.9s for test flights, and on Thursday he was out again with four more. On Friday, he put another D.H.9 and also a Bristol Fighter through tests for a foreign Power.

On Saturday morning with oneself as passenger he flew round the new Aerial Derby Course on a D.H.9. Somehow or other the course seems easier to follow clockwise than the previous way. Brooklands can be picked up shortly after leaving Croydon, but before the turn is made Kempton Chimney, which is some distance on the direct course to Hertford, can be seen, and is a very good bearing to take on the turn, which is the sharpest of the whole course. On this leg there are several prominent landmarks. Hounslow Aerodrome is on the left, and a bit farther on is Acton on the right, while Northolt can be seen away to the left a bit farther on. Then comes Cricklewood and the Welsh Harp slightly to the right, and the course passes between De HavilLand and Hendon.

As we passed over De HavilLand there were two D.H.9s and an Instone-coloured D.H.34 standing on the aerodrome. After passing Hendon there is not much in the way of landmarks until Hertford is reached, where the turning point is a large field by the railway station, which, on the day of the race, has a large white cross on it (which, incidentally, is *not* an advertisement for a well-known insurance company).

After this turn Haileybury College makes a very good landmark to take up new bearings, as the direct course passes right over this, and a dead straight line takes one right to Epping, where the turning point is the curious square tower to the church. Here the course merely veers a few degrees, and if the weather is anything like decent the particular bend of the river on which the West Thurrock chimneys are situated can be clearly seen and the twenty-odd chimneys themselves can be seen a long way off.

Again, given decent weather, the Crystal Palace can be seen on rounding West Thurrock and the course goes over Bromley and Beckenham, and so to Croydon.

We left Croydon at 11.40 hrs. and completed the 100 miles in exactly one hour.

The Instone Air Line are now getting a large number of passengers. Their fleet comprises one D.H.18, three D.H.34s, three Vickers "Vulcans," and one Westland. The "Vimy" is now ready for test again, and there is a D.H.34 at Stag Lane ready for delivery, where there is also a D.H.18 being renovated. It is to be hoped that the run of ill-luck which for some time dogged the Line has finally ceased now that the passengers are at last rolling up in quantity.

Handley Page Transport have the W.8 and the three W.8bs now running on the service. On Thursday Mr. Wilcockson was returning on G-EBBG and when at 1,200 ft. in mid-channel an inlet valve went in the port engine. He throttled down to 1,200 revs. and by the time he reached Croydon he was nearly at 5,000 ft. He only had one passenger but he had a heavy load of freight.

The Daimler Airway should by now have their third machine, G-EBBU, back from Stag Lane and will then have their complete fleet of three machines. Sir Sefton Brancker travelled on the 05.15 newspaper machine one day last week. It is not quite known whether he got up early on that day or went to bed late, or whether he had taken to heart an article in the *Evening News* on the joys of early morning flying by the Daimler Airway.

The Surrey Flying Services continue to get a large crop of five shilling joy-riders and also a fair number of cross-country flights. Last week they completed a new Avro, G-EBBP, which is now on the service.

On Thursday of this week Major E. L. Foot, of Handley Page Transport, poins the ranks of the Benedicts. Everybody will wish him and his by-that-time wife all the best of luck.

Stag Lane.

The De Havilland Aeroplane Hire Service have during the past week carried out a number of inland and overseas flights.

On July 25th Mr. Broad flew to Dunkirk and back on D.H.16, G-EAPT, Mr. Robinson (lent by Daimler Airway) also flew to Dunkirk and returned on a D.H.9c, and Mr. Cobham flew to Goodwood and back ferrying Press photographs.

On July 27th Mr. Cobham flew to Paris and proceeded thence to Brussels and Amsterdam, returning to Stag Lane on the 29th.

On the 28th Mr. Wilson left on a photographic tour and has not yet returned.

On Saturday, the 29th, Mr. Broad ran the weekly Manchester Service and Mr. Barnard flew the Marquess of Worcester from Luton Hoo to Cheltenham. Throughout the week there have been the usual dual control instruction with four pupils on D.H.6 and D.H.9 machines, short pleasure flights and test flights on a D.H 34. In addition the daily newspaper service between Lympne and Ostende has been running with complete regularity, 23 return flights being carried out during the week.

CAPT. MACMILLAN'S PROGRESS.

Capt. Norman Macmillan reached Karachi as mentioned last week at 13,30 hrs. on Wednesday, July 19th. Apparently some annoyance was caused to Capt. Macmillan's passengers by the fact that the British Customs Officials at Karachi insisted on doing their routine duty on the arrival of the machine in spite of the fact that in foreign countries, where excitement is apt to overwhelm official people, no demands had been made for the filling up of Customs forms. Personally one regards this incident merely as a testimonial to the imperturbability of the Customs Officers of the British Empire.

As those who had knowledge of the Indian climate stated before Capt. Macmillan's flight began, it was found that he and his passengers had arrived in India precisely at the wrong time of year, namely when the monsoon was at its worst.

Apparently Capt. Macmillan left Karachi on July 22nd, heading for Lahore via Jacobabad and was reported from Karachi on July 25th to have crashed while landing at Sibi, 80 miles south-east of Quetta. On the same day, July 25th, Major Wilfred Blake telegraphed from Quetta to the *Daily News* stating that the party had arrived that day at 10.27 after a successful flight *from* Sibi. Later on the same day he telegraphed that they had damaged their undercarriage and tail skid in landing *again* at Sibi. Thus from internal evidence it would appear that the crash happened on that day, Tuesday, the 25th.

There is something of a mystery about this part of the trip, as not only is Quetta approximately 200 miles off the direct route from Karachi to Lahore but, whereas the line from Karachi to Lahore runs practically straight up the Indus, the line from Quetta to Lahore is entirely across country and involves crossing quite a considerable range of mountains on what used to be the Pathan Frontier.

It may be that Capt. Macmillan was advised to take that out-of-the-way course in the hope of escaping the monsoon rain along the valley of the Indus, but there seems to be a fairly common opinion in the Air Ministry that as none of the party happens to be a qualified navigator Capt. Macmillan, the pilot, simply lost his way. This view seems to be confirmed by the fact that after arriving at Quetta the machine was crashed when *returning* to Sibi. One may assume that the trip from Sibi to Quetta and back, a matter of 150 miles, was not undertaken simply as a joy-ride.

One gathers from the *Daily News* that after the crash at Sibi the Officer Commanding R.A.F. at Quetta flew over with spares to Sibi, and that later two tenders with a complete breakdown party arrived from Quetta to work on the machine, and that five of the R.A.F. personnel and one native assistant collapsed during the process owing to the heat. It would be of interest to know to what particular R.A.F. Vote the expenses of this trip and of the hospital expenses of the sick men are to be charged. If the Officer Commanding an R.A.F. station uses R.A.F. mechanical transport for conveyance between his headquarter office and his official residence, which may have been fixed some miles away by the R.A.F. Authorities, he is required to refund to the R.A.F. the cost of using

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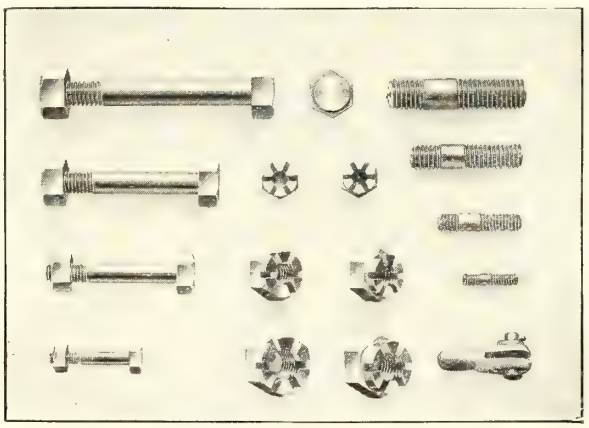
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that transport, and, therefore, a trip of 150 miles across mountains by two R.A.F. tenders and the cost of all their personnel for some days on end cannot possibly be paid by the R.A.F. Perhaps it might come out of the Civil Aviation Subsidy Vote, or it might even be charged up to the promoters of this civil aviation venture.

Apparently, the machine was patched up, and an attempt was made to get away from Sibi on the same Tuesday, the 25th, but after a few minutes the petrol pumps gave out and Capt. Macmillan landed at Sibi for the *third* time. Thence it seems that the party decided to fly to Quetta, that being the nearest R.A.F. station. This was apparently reached the same day.

On Friday, July 28th, Capt. Macmillan left Quetta and made his *fourth* landing at Sibi. Major Blake and Mr. Malins arrived at Sibi on the 29th on a Bristol Fighter provided, like the transport earlier in the week, by the R.A.F., and thence they started again with Capt. Macmillan as pilot for Lahore. They stopped at a place called Montgomery for petrol, and there found so much rain and mud on the aerodrome that they had to send on all their goods by train and fly the machine light. Ultimately, they arrived at Lahore on Saturday, the 29th.

The latest reports state that Capt. Macmillan and party left Lahore on July 31st for Delhi.

THE AERIAL DERBY.

THE AERIAL DERBY will take place on Monday next, Bank Holiday. The entrants are :—

Aircraft Disposal Co., Ltd. (Capt. R. H. Stocken), Martinsyde F.4. (300 h.p Hispano Suiza). Aircraft Disposal Co., Ltd. (H. H. Perry), S.E.5a (200 h.p. Viper). Gloucestershire Aircraft Co., Ltd. (J. H. James), Mars I. ("Bamel") (450 h.p. Napier "Lion"). Gloucestershire Aircraft Co., Ltd. (L. R. Tait-Cox), Mars III. ("Sprawk") (200 h.p. B.R.2). Bristol Aeroplane Co., Ltd. (L. L. Carter), Bristol Monoplane (100 h.p. Bristol "Lucifer"). Bristol Aeroplane Co., Ltd. (R. A. de H. Haig), Bristol Bullet (400 h.p. Bristol "Jupiter"). Bristol Aeroplane Co., Ltd. (C. F. Uwins), Bristol Monoplane Racer (400 h.p. Bristol "Jupiter"). F. P. Raynham (F. P. Raynham), Martinsyde F.6. (180 h.p. Viper). A. S. Butler (A. S. Butler), D.H.37. (375 h.p. Rolls-Royce "Falcon"). A. V. Roe & Co., Ltd. (Bert Hinkler), Avro Baby (35 h.p. Green).

The following races will also take place :—

THE AIR LEAGUE CHALLENGE CUP :—Presented by Major-General Sir Sefton Brancker, K.C.B., and Mr. Philip S. Foster. (Holders : Royal Air Force, Kenley). The Race for 1922 will be a Relay Race between the following teams from the Royal Air Force at Kenley and Uxbridge :—

Royal Air Force, Kenley.—F/Lt. James M. Robb, D.F.C.—S.E.5a, F/Lt. Roy W. Chappell, M.C.—Avro, F/Lt. Francis L. Luxmoore—S.E.5a.

Royal Air Force, Uxbridge.—F/Lt. Walter H. Longton, D.F.C., A.F.C.—S.E.5a, F/O Frank G. Gibbons, D.F.C.—Avro, S/Ldr. Frank L. Robinson, D.S.O., M.C., D.F.C.—S.E.5a.

The Race is over a distance of approximately 24 miles, being three laps of the circuit of approximately 8 miles. One representative of each Team will start together in S.E.5a Aeroplanes. At the end of the first lap they will land on the Aerodrome, hand a baton to a second representative of each Team who will then fly the second lap in Avro aeroplanes. At the end of the second lap the second representative of each Team will land on the Aerodrome and hand the baton to the third representative of each Team who will then fly the third lap in S.E.5a Aeroplanes. On completing the third lap the aeroplanes will cross the finishing line in flight. The winning Team will be the one whose representative, having properly completed the course, is the first to cross the finishing line. The S.E.5a Aeroplanes in this Race have been kindly loaned by the Aircraft Disposal Company, Ltd.

THE AUGUST OPEN HANDICAP. (16 miles).—Prizes : 1st, £30. 2nd (if five or more starters), £10. Open to all types of Aeroplanes.

The Race is over a distance of approximately 16 miles being two laps of the circuit—Waddon Aerodrome, Purley Downs Golf Club, and Beddington Cement Works. The following are the entrants :—Capt. R. H. Stocken (Martinsyde Suiza), H. H. Perry (S.E.5a Viper), J. H. James ("Bamel" Napier "Lion"), L. R. Tait-Cox ("Sprawk" B.R.2), L. L. Carter (Bristol "Lucifer"), R. A. de H. Haig (Bristol "Jupiter"), F. P. Raynham (Martinsyde Viper), A. S. Butler (D. H. 37 Rolls-Royce), Bert Hinkler (Avro "Baby" Green), C. F. Uwins (Bristol Monoplane "Jupiter"), W. H. Longton (S.E.5a Viper), D. A. Spenser Grey (Avro Le Rhone), James M. Robb (S.E.5a Viper), Chris Draper (Avro Le Rhone).

AIRCRAFT IN PARLIAMENT

LONDON-INDIA AIR ROUTE :—On July 25th replying to a question by Mr. L. Malone The Secretary of State for Air denied that any applications have been made by air transport lines to operate an aeroplane service from London to India. He added that certain firms are watching this question and its possibilities.

PERSONNEL :—Replying to Lieut.-Cmdr. Kenworthy on July 25th Captain Guest said that the total personnel of the R.A.F., male and female, numbered 28,906 and 46 respectively, the latter figure representing the personnel of the R.A.F. Nursing Service. There are 1,714 fully trained pilots and 109 observers excluding those under flying training. Captain Guest said that it would be difficult to assess the proportion of this number of pilots and observers who can be said to be employed on naval duties, but there are 373 first line aeroplanes in service units without counting training or reserves, and these are manned by 461 pilots and 92 observers of which 84 pilots and 35 observers work with the Navy, namely about 20 per cent. Of the remaining 1,253 pilots, the proportion employed on work with the Navy is probably about the same. Lieut.-Cmdr. Kenworthy thought it very anomalous that only 20 per cent. of the pilots should be attached to the Navy but Captain Guest pointed out that two-thirds of the R.A.F. is stationed overseas.

GOSPORT :—In reply to a question by Viscount Curzon, Captain Guest said that the Air Force establishment at Gosport is a flight maintained for experiments with the running of torpedoes from aircraft and for the study of modifications to aircraft fittings and to torpedoes in connection with such work. In this work the Naval Torpedo School, described as H.M.S. *Vernon*, closely co-operate. The flight consists of three machines with an establishment of four officers, one of whom is attached from the Navy, 18 other ranks and three civilian assistants.

NAVAL OFFICERS (AIR TRAINING) :—On July 25th replying to Cmdr. Bellairs The Parliamentary Secretary to the Admiralty said that there was no record of the Air Ministry having asked for a definite number of officers to be seconded to the R.A.F. Early in 1920 they asked that a certain number might be seconded for training as pilots and a Fleet Order was issued in July, 1920, inviting officers to volunteer. Only seven names were received, these seven starting training in September, 1920. Further discussion took place with a view to securing a total of 100 volunteers, but the conditions which the Admiralty thought necessary to lay down were unacceptable to the Air Ministry. The matter then dropped, the Air Ministry taking steps to obtain their pilots from other sources.

NAVAL OFFICERS :—On July 27th in reply to a question by Lieut.-Col. Moore-Brabazon, Captain Guest said that seven Naval Officers were seconded to the R.A.F. in 1920, since which date no others have been seconded, in spite of the earnest desire of the Air Ministry to secure volunteers. Capt. Viscount Curzon objected to the expression "seconded" and asked Captain Guest if he is aware that the Navy have no power to second officers and that the officers themselves have a great disinclination to serve in another Service at a critical time of their careers. Would it not be correct to say that the officers volunteered? Captain Guest explained that he used both terms in his reply.

A FLYING BOAT :—Replying to Viscount Curzon, Capt. Guest said that the Supermarine Aviation Company has in hand an order for a large flying boat hull but he did not consider that it would be in the public interest to give any information as to its details. The crew will be supplied by the Air Ministry.

MARINE CRAFT :—Replying to a further question by Viscount Curzon, Capt. Guest said that the establishment of marine craft maintained in use in connection with the operation and salving of aircraft is as follows :—35 Power-driven craft, 21 Pulling-boats and 3 barges, etc. There is also a surplus of war stocks held as a reserve. These craft were for the most part taken over by the Admiralty on the formation of the Air Force. The craft were mainly built by Messrs. Thorneycroft, Messrs. Cox and King and Messrs. Gibbs. The repairs are carried out by direct contract. 127 men are required to man them, whose training is for the most part carried out in the R.A.F. Units to which the boats belong and also at a small marine training establishment at Calshot. Lieut.-Col Moore Brabazon asked whether it is a fact that the Navy has not enough room on its carriers for the number of machines already supplied to it by the Air Ministry. Capt. Guest said he was unable to answer that question. Mr. Rose : "Does the Right Hon. Gentleman regard the details which he has given as consistent with the public interest? Is it right that these things should be made public and copied in the 'Stunt Press' for some purpose we know not what?"

THE R.A.F. RESERVE :—In reply to a series of questions by Viscount Curzon, Capt. Guest said that statements which have appeared in the Press to the effect that a new Air Force Reserve is being created are not accurate. He went on to explain the short service system, commissions under which are followed by a period in the Reserve and said that the reserve is intended to provide for the requirements of the R.A.F. at a time of national emergency, including the duties of the Air Force in connection with the Royal Navy.

THE AIRCRAFT INDUSTRY :—Replying to Sir H. Brittain, Capt. Guest said that the possibility of giving further orders to the aircraft industry beyond those already budgeted depends upon the decisions of the Committee of Imperial Defence. He was unable to state whether his Department would have the funds to give orders to manufacturers, and to enable them to keep their works going and their staffs together until the House meets again, and he could not promise to make any announcement on this subject before the House rises.

THE AUXILIARY AIR FORCE :—In reply to a question by Mr. L. Malone, Capt. Guest said that the constitution of the Auxiliary Air Force will be similar to that of the Territorial Army except in regard to service, training and material. It is uncertain when the Bill for the Auxiliary Air Force can be proceeded with, as the whole question of home defence is under consideration by the Committee of Imperial Defence. The cost will depend on the size of the force.

Mr. Malone : "Is it proposed to take the cost out of the battleships which are being built now?"

AIR DEFENCE :—Mr. Malone and Maj.-Gen. Seely asked The Prime Minister what the Government were doing about Air Defence, and were told that the whole subject was being considered by the Committee of Imperial Defence. The Prime Minister went on to say that there was not complete agreement among those who are in favour of increasing the efficiency and strength of the Force. The Government were, however, fully alive to the gravity of the problem. Sir W. Joynson-Hicks asked if in the event of no decision being arrived at before the House rises could any decision the Committee might arrive at be enforced before the reassembling of the House. The Prime Minister : "Yes."

IMPERIAL DEFENCE :—Mr. Lloyd George, replying on July 31st to questions by Viscount Curzon and Sir H. Brittain, concerning the control of, and provision for, the air branch of the Navy, and the importance of maintaining the Aircraft Industry in this country, said : —"I do not think that at the present stage I can usefully add to what I said on Thursday last in reply to questions on these subjects. The whole problem is engaging the earnest attention of the Committee of Imperial Defence, and there will be no avoidable delay in coming to a decision; but having regard to the difficulty and importance of the problem I cannot fix any definite time limit." Further, as to whether it would be possible to given any information on the subject before the Recess, he suggested that he might be able to reply to a question on Thursday.

HOME DEFENCE :—Capt. Guest, replying to Mr. Rose on July 31st, said :—"As to the statements on the Air Defence of London which appeared in the *Evening News* on Friday and Saturday, these statements are, to a large extent, accurate. Much of the substance of them will be found in my speech introducing the Air Estimates on March 21st. The Press published this information at the time, and I conclude that this newspaper has now reproduced it in view of the great interest at present being taken in the air defence. Other details were, no doubt, obtained by the intelligent use of ordinary sources of information, such as the Air Force List and previous Press reports. No exclusive information whatever was given to this newspaper. The map and the supposed *communiqué* were drawn very largely from the imagination of the reporter.

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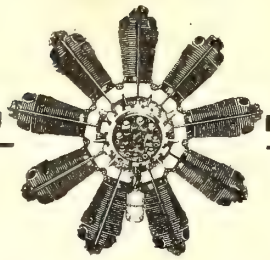
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French Air Ministry Type Test—June, 1922.

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WEDNESDAY, AUG. 9, 1922.

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CHINA'S VERY OWN.

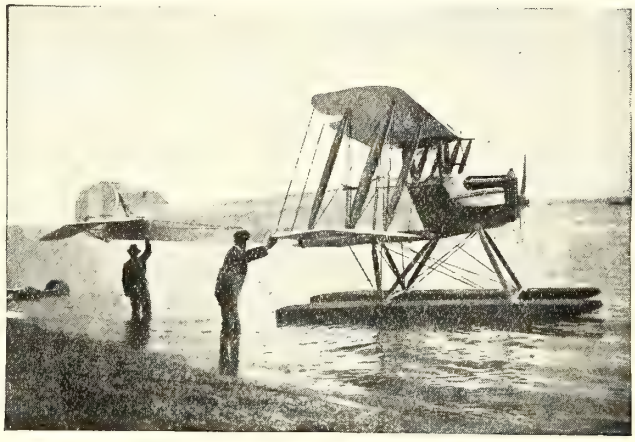


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THE FIRST CHINESE SEAPLANE.—This is the first product of the Chinese Naval Dock and Engineering Works at Foochow. It was flown in May, 1922, by Mr. R. C. B. Hockey, late R.N.A.S., for Admiral Ch'en. If Mr. Hockey had descended outside the Dockyard limits he would have been taken prisoner by General Li, the Admiral's rival. The particulars are as follows:—Span (upper) 27 ft.; Span (lower) 21 ft; Chord 5½ ft.; Fabric Shantung silk, doped; Wood local Chinese, largely bamboo; Metal-work, all made locally; Engine, American Hall-Scott, problematic 100 H.P; Airscrew, local wood, laminated; Speeds, get-off 51 m.p.hr.; full 62 m.p.hr.; landing 42 m.p hr.; stalling 36 m.p.hr.; Floats, 11 ft. × 2 ft. × 1.8 ft.; Load—would not get off with 2,200 lbs; Ceiling, 10,000 (doubtful).







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THE HOME DEFENCE VICTORY.

The Air Ministry has won another victory in its series of campaigns against its many enemies. The following is from the Hansard Report of the proceedings in the House of Commons on August 3rd :—

THE COMMITTEE OF IMPERIAL DEFENCE.—VISCOUNT CURZON and CAPT. W. BENN asked the PRIME MINISTER if the Navy were to be given control of the aircraft operating with the Navy, and SIR HARRY BRITTAN asked the PRIME MINISTER whether orders were to be given to British aircraft and aero-engine manufacturers to enable them to keep their works going and their staffs together until the House reassembles.

The PRIME MINISTER said : " The Government, as the result of an inquiry by the Committee of Imperial Defence, have decided to adopt a scheme submitted by the Air Ministry providing a force of 500 machines for home defence at an increased cost of £2,000,000 per annum. £900,000 out of the total of £2,000,000 will be found by economies in the Estimates of the Air Ministry.

" The inquiries of the Cabinet Committee of Economy in the Fighting Services have advanced sufficiently far to enable me to state that the addition to the Air Estimates will not prevent a reduction in the total estimates of the three Fighting Services for the year 1923-24.

" Considerable orders in execution of this programme will be placed with private firms in the current calendar year.

" The foregoing decision will not prejudice a further expansion of the Royal Air Force if later on this is found necessary to our national security. This question will be considered in the light of the financial situation next year and of the air policy adopted by other Powers.

" The inquiry into the system of naval and air co-operation and as to the best method of securing that the Air Force should render to the Navy the aid it may require, has not yet been completed."

COL. WEDGWOOD asked if the enormous increase in the expenditure on the Air Force is due to the enormous development of the Air Service in France, and the

PRIME MINISTER replied that all circumstances had to be taken into account.

SIR W. JOYNSON-HICKS was told that no further statement would be made by the Prime Minister on August 4th, but that the matter could be discussed on the Adjournment Motion.

The foregoing does not necessarily mean that 500 new aeroplanes for Home Defence will be ordered immediately from the Aircraft Industry. Still less does it mean that £2,000,000 is to be spent immediately on new aeroplanes. In fact, a later report suggested that only £300,000 will be spent on new machines this year.

One must be grateful for small mercies in these hard times, but how a minimum of 20 aircraft firms are to be kept alive for eight months on £300,000 will puzzle the Aircraft Industry somewhat. It is not an over-estimate to say that the Trade spends at least £450,000 per annum on its design and experimental work alone, so unless there is a definite promise of respectable orders for the re-equipment of the R.A.F. in the next financial year—as suggested in Mr. Lloyd George's penultimate paragraph—the Trade may as well shut up shop now as go on losing with the help of that £300,00 what little money it has left.

However, one has almost unlimited faith in the ability of those who are now at the head of the Air Ministry, and one feels that they will see that all that can be done is done for the best interest of the R.A.F. and the Aircraft Trade, those two apparently dissimilar but actually interdependent mainstays of our Imperial Defence.

The Air Council is to be congratulated on this fresh step towards the recognition of the R.A.F. as the King's Premier Service, and one wishes it all success in its further fight against the Navy's calumnies in the matter of naval and air co-operation. Honesty is the best policy, and those who have followed closely the controversy in the Houses of Parliament have been struck by the fact that while the replies of the representatives of the Air Ministry have been obviously honest and straightforward, those of the Admiralty representatives have been disingenuous and have always seemed to have a catch in them. This fact is not being lost on the British Taxpayer, and in due course the Air Ministry will reap its well-deserved reward.—C. G. G.

ON THE BOMBING TESTS.

On the whole one is deeply grateful to the Admiralty for a happy day in connection with the bombing tests on *H.M.S. Agamemnon* and *H.M.S. Oportune*. It was this way. Being, like the elephant's child in the " Just So Stories " of Mr. Kipling, " full of 'satiable curtiosity " one wanted to find out the truth about this bombing of battleships of which the papers have been so full lately. Therefore one rang up the Publicity Department of the Admiralty with intent to obtain permission to go and see the bombing in the act.

A most affable naval officer at the other end of the telephone said that only twelve passes were being granted for the purpose and that these had been allocated to the Press agencies and the daily Press. One understood him to say also that his Department had communicated with the S.B.A.C.—that is the Society of British Aircraft Constructors, who as builders of the naval aircraft which the Navy has not got would naturally be interested in these tests—and that in consequence or in spite of this (one was not quite clear which) only the non-technical Press would be allowed to view the tests from the Navy's vessels. One replied, equally affably one hopes, that one quite understood that the Admiralty had more need of the daily Press than of air technical journals, good morning and thank you.

After that one rang up the S.B.A.C. who stated categorically that they had had no communication of any kind from the Admiralty in the matter of these tests, let alone anything to do with permission to view the tests. Evidently therefore one misunderstood the officer in question, and the phrase which one thought to be " S.B.A.C. " must have been some mystic naval formula incomprehensible to the ordinary understanding. Still it would have been quite natural if the Admiralty had asked the S.B.A.C. whether it wanted any of the twelve precious passes-to-view, that is of course if the Admiralty were really anxious to obtain the best possible aircraft and if it were capable of thinking out the best way of getting them. But apparently it did not, is not, and cannot.

Therefore, having ascertained that the British Navy only holds twelve—which seems quite in keeping with its inability to accommodate more than six fighting aeroplanes (*vide* Mr. Amery's answers in the Commons)—one asked the Air Ministry whether one would be shot at dawn if one visited the aerodrome from which the aeroplanes were to start. The reply being in the negative one secured a safe-conduct as a life assurance against the wrath of the O.C. Gosport and proceeded thither in luxury and a Napier car of the best, accompanied by that very good friend of the Aircraft Industry Mr. F. H. Jones of the Napier Co.

The result was that one spent a completely amusing day among the officers and gentlemen of the Royal Air Force instead of spending a day among journalists and naval officers. Moreover one gathers that most of the said journalists were very sea-sick, as were some of the foreign attachés and other official visitors to the tests, and therefore did not see much more of the show from their comic sea-boat than one did from the Gosport aerodrome. Which probably accounts for their neglect of the second day's tests. So on the whole, as aforesaid, one has much for which to thank the Publicity Experts of the "Silent Service."

The First Day's Tests.

The first and most important thing to understand about the tests is that they were in no way tests of bombs or of

aeroplanes or of ship's armour or of the ability of a ship to stand bombing. They were purely and simply tests of bomb-sights and gun-sights and of the ability of R.A.F. personnel to use those sights, and of the eyesight of the R.A.F. They bore no more relation to real naval bombing than did the bombing of the tank at the R.A.F. Pageant to bombing in real land war.

The bombs used were merely nine-pounder practice bombs which give out a burst of white smoke on impact and are quite harmless unless one happens to be the particular object impacted. The machines were Handley Page O/400s, D.H.9as, Vickers "Vimys," "Snipe," and "Camels." The last-named were particularly interesting in that they are, one believes, the last "Camel" formation in the R.A.F., there being no more "Camel" spares available when these are crashed.

The ships were an old battleship and an old destroyer, neither of which would stand up to a serious air attack. *Agamemnon's* armour though thick is nothing when compared in toughness with that of a modern battleship and *Opportune's* speed is too low to give her a chance of doing anything to get out of the way.

On Tuesday, August 1st, the first test was an attack by D.H.9as. (from 207 Squadron, Bircham Newton) at a height of 8,000 feet on *Agamemnon*, steaming at 10 knots under wireless control. The machines dropped 96 bombs of which it was reported that only 3 scored direct hits, though nearly all the rest were so close as to have done serious damage had they been of the large size which would be used in war, particularly several groups which fell close under the stern.

In the second test four "Snipe" dropped bombs point-blank, to represent an attack on an aircraft-carrier in order to stop enemy aircraft from ascending. Of the 48 bombs dropped only three or four missed the ship.

In the third test six "Camels" from Leuchars made a machine-gun attack, representing no doubt the clearing of the decks of a ship to prevent anti-aircraft fire against attacking bombers. In this case dummies were placed on the bridge and in other positions where personnel would be likely to be exposed. Only 750 rounds were fired and so far as one could gather all the dummies were hit. The dummy Captain on the bridge was hit in the knee, and it was found afterwards that one of the bombs had almost penetrated to his cabin—whither he would have been carried when wounded—so, as one R.A.F. officer put it, he would have been "for it" either way.

Perhaps one of the most interesting points about the tests was the penetrating power of these little nine-pounders. All those which hit the deck of *Agamemnon* stuck well into the deck planking and bulged the plates beneath. One, in fact, when prized out of its hole showed that it had torn the plating and let daylight through. Multiply the strength of the plating and the weight of the bombs in equal progression and somewhat useful results might be obtained in real war.

In the course of the D.H.9a attack the "Liberty" engine of the machine in which the O.C. 207 Squadron was operating stopped abruptly and he and his pilot "went into the ditch," as the R.A.F. has it. They were ultimately rescued by a boat from a destroyer to which the pilot had glided, and received every kindnes from the officers thereof. The machine was left to sink, with true Naval regard for economy.

One is assured (not by the victims in this case) that the Navy's neglect of aviation does not extend to leaving R.A.F. personnel to sink with their aeroplanes, nor even to delaying rescue deliberately until the aircraft crew is seriously discommoded. Any delay which may occur seems to be due merely to inexpertness in handling row-boats.

Afterwards there was some independent bombing by a Handley Page and a "Vimy" from 8,000 feet, with fairly satisfactory results.

The perfomance on August 2nd began with low bombing from 2,000 feet. The results were not so good as those obtained later from 8,000 feet. The reason seems to be that the sights "come on" so quickly, owing to the field of vision being limited because of the nearness of the target, that it is harder to secure accuracy.

The next test was formation bombing by the D.H.9as from 8,000 feet. In this case the machines were above small patches of thick cloud and so would have made a very bad target for "Archie" gunners, whereas the clouds made very little difference to the aviators. The results were very good, something like 50 per cent. of the bombs scoring either direct hits or "near hits." Visibility was good in spite of the clouds, and one bomber remarked that they could see the ships 30 miles away as soon as they left the aerodrome. It would be of interest to know how far away it is possible to spot an aeroplane of the size, say, of a D.H.9a. On the same afternoon several of us who were watching a departing Bristol lost sight of it at about 15 miles, but that is a matter very different from spotting the approach of unexpected aeroplanes.

The final event of the day was the machine-gunning of *Opportune* by seven of the Leuchars "Camels." Here one may say that never, not even at the R.A.F. Pageant, has one seen better formation flying than that of these "Camels" when leaving and returning to the aerodrome. Their get-off was not quite up to the famous "Snipe" formation, but when once in the air they were beautiful to watch.

The shooting-up of *Opportune* seems to have been very nearly missed. It appears that the vessel was named on the *lucus a non lucendo* principle. When things were being got ready to despatch the attacking machines it was discovered, by some bright lad in the R.A.F. who thought of telephoning to Portsmouth, that the target was not in its place. Anxious enquiries by the R.A.F. from the Navy elicited the information that somebody had forgotten all about the target, which was still lying in Portsmouth Harbour instead of being out off the Nab Light at the opportune moment.

People who will go and forget a destroyer and leave it lying about in that careless way may be forgiven for forgetting the value of such little things as aircraft, as the Navy did during and after the War till quite recently. Perhaps it was similar forgetfulness which left the *Lusitania* unprotected while six destroyers escorted the *Finlandia* up Channel a few hours ahead of her, or which caused three-quarters of an hour to elapse before the first destroyer from Kingstown reached the *Leinster* when torpedoed only 12 miles out of the same harbour.

Anyhow eventually the Navy managed to tow the *Opportune* out to the mark, where she was duly shot-up by the "Camels" who came back in beautiful formation, broke up over the aerodrome and gave exhibitions of varied methods of landing. Altogether a very pretty sight.

When one returned to London one found that the representative of a big London daily who had been on the official observation vessel, which, it will be remembered only holds twelve newspaper people, had been lamenting to a member of the staff of THE AEROPLANE the bad arrangements of the tests, how the foreign attachés and the Press had been started off at dawn in an uncomfortable ship and had been kept rolling about all day to see a show which could all have been done in an hour or two. He intimated that it left a very bad impression and that if the R.A.F. wanted popular support it ought to stage-manage its affairs better. He was quite surprised when one rang him up and told him that the whole thing was the Navy's show, that the R.A.F. could only with difficulty get permission for its own official people to go on board to watch the tests and that the R.A.F. could not start out bombing or machine-gunning till the Navy said that the targets were ready. He had evidently received from the Navy the idea that the R.A.F. was to blame for the sloppy way the affair was run. He remarked that the personal animosity of the ordinary naval officer of all ranks against the R.A.F. was quite astonishing and he thought that cordial co-operation between the Services would be hopeless until the R.A.F. demonstrated its superiority and showed itself both the Navy's master and the Navy's protector.

Others also hold this view. One believes that the Navy will go on bickering and behaving generally like silly children until the R.A.F. sinks a big ship in front of the eyes of all these stupid old admirals and convinces them that the Navy has got to come to heel. Tests such as those off the Nab prove nothing, for the Navy and its publicity agents in Parliament and the Press will always argue that it was not attacked with real weapons under war conditions.

It really hardly seems worth while to bring a squadron from the Norfolk coast and a formation from Scotland just to do what either could have done equally well in the sea bordering their own aerodromes or against dummy ships at the Pageant at Hendon. The Navy takes good care that there are as few visitors to this little water-pageant as possible.

What the Air Ministry ought to do is to get the Government, not the Admiralty, to hand over a strong but obsolete ship, such as *H.M.S. Conqueror*, to the R.A.F. to be sunk by fair means or foul, just as General Mitchell of the U.S. Army Air Service sunk the *Frankfurt* and *Ostfriesland* under the eyes of the U.S. Navy and after the U.S. Naval Air Service had failed. When our bone-head Admirals have seen a fully armoured ship, with water-tight doors properly closed, sunk by the R.A.F. then the Navy will believe in the R.A.F. and will have the sense to behave accordingly. Meantime it is merely waste of time arguing with naval officers or trying to be civil to them. It used to be said that the only way to get the wit out of a Scotsman was with a corkscrew, to-day it is certainly true that the only way to get sense into a naval officer is with a bomb.

But meantime the R.A.F. is getting along very nicely without the Navy and if the Navy is not brought to its

senses soon the R.A.F. will take command of the sea without the Navy's help. And from what one saw of the R.A.F. Coastal Area personnel at Gosport one believes that the R.A.F. would do the job very much better.

One former officer of the R.N.A.S. of vast experience said recently that all the recent trouble is only the old Admiralty game again, for the amount of rot some of these people talked showed how little at heart they either cared about the safety of the Nation or knew about Aviation. He added that it would of course be fatal to hand Aviation back to the Navy, for he had never once found that they ever initiated anything. In fact, he said, he always found during the War that he had more trouble in getting permission from his superiors to do anything than he experienced from the enemy in doing it.

That priceless phrase from a very brilliant officer sums up in a few words the characters of the people to whom Viscount Curzon, the Harmsworths and some others would hand over British Air Power at sea. Such a thing must not be, and it cannot be. But the quickest way of preventing it is for the R.A.F. actually to sink a battleship instead of playing with puff-bombs—C. G. C.

R.A.F. INTELLIGENCE.

R.A.F. Appointments.

Air Ministry, Aug. 3rd.

Group/Capts. I. M. Bonham-Carter, O.B.E., from H.Q. R.A.F., Ireland, to Command R.A.F. Depot, 1/8; R. P. Mills, M.C., A.F.C., from H.Q., R.A.F., India, to Air Ministry (Director of Personnel), on appointment as Deputy Director of Organisation, 1/8.

Wing/Cmdrs. C. R. S. Bradley, O.B.E., from No. 10 Group H.Q. to Half-Pay List, 16/7; G. P. Grenfell, D.S.O., from Inst. Design Estab. to R.A.F. Depot, 19/7. Note—The previous posting of this officer from I.D.E. to No. 1 F.T.S., notified on 17/7, is cancelled. J. T. Babington, D.S.O., from R.A.F. Depot to No. 7 Grp. H.Q., 1/8; A. V. Bettington, C.M.G., from No. 12 Wing H.Q. (Ireland) to Command R.A.F., Ireland, 1/8; V. O. Rees, O.B.E., from R.A.F. Depot to I.A.A.D., 27/8.

S/Ldrs. F. W. H. Lerwill, O.B.E., from School of T.T. to R.A.F. Depot, as Officer in charge of Central Trade Test Board, 24/7; R. H. Kershaw, from No. 10 Grp. H.Q. to School of T.T. (Men), 15/7; R. E. Bell, M.B. Note—The previous notification wherein this officer was posted from R.A.F. Depot to Half-pay List with effect from 27/7/22, is cancelled. A. J. Miley,, O.B.E., from No. 4 F.T.S. (M.E.) to Aircraft Depot, Egypt, 30/6; A. Corbett-Wilson, from Aircraft Depot, Egypt, to Command Engine Repair Depot (M.E.), 19/6; A. G. R. Garrod, M.C., D.F.C., from R.A.F. Depot to School of Army Co-operation on completion of course at R.N. Staff College, 21/7; A. R. Arnold, D.S.C., D.F.C., from R.A.F. Cadet College (Flying Wing, Cranwell) to H.Q.I.A., 21/7; W. Sowrey, A.F.C., from R.A.F. Depot to No. 207 Squadron, 1/9; D. S. K. Crosbie, O.B.E., from R.A.F. Depot to School of Army Co-operation, 1/9; C. S. Wynne-Eyton, D.S.O., from R.A.F. Depot to No. 5 F.T.S., 27/7; J. T. Whittaker, M.C., from No. 28 Sqdn. (India) to R.A.F. Depot (Supernumerary), 24/6; P. J Wiseman from I.A.A.D. to Aircraft Depot (Iraq), 18/7; L. C. Keeble, from R.A.F. Base, Leuchars (No. 205 Sqdn.) to Marine and Armament Exper. Estab., 1/8; G. B. Dacre, D.S.O., from Marine and Armament Exper. to R.A.F. Depot (Supernumerary), whilst attending R.N. Staff course, 25/9; A. W. Tedder, from No. 207 Sqdn. to R.A.F. Depot (Supernumerary), whilst attending R.N Staff course, 25/9.

F/Lts. O. G. Gregson, from R.A.F. Depot to No. 10 Grp. H.Q., 11/7; A. W. Fletcher, D.F.C., A.F.C., from R.A.F. Base, Leuchars (No. 3 Sqdn.) to H.M.S. *Argus*, 7/7; R. F S Leslie, D.S.C., D.F.C., A.F.C., from H.Q., R.A.F., India, to H.Q.C.A., 30/4; J. A. Glen, D.S.C., from R.A.F. Depot to No. 39 Sqdn., 1/8; A. C. Sanderson, D.F.C., from No. 39 Sqdn. to No. 100 Sqdn., 1/8; P. H. Cummings, D.F.C., from R.A.F. Depot to No. 207 Sqdn., 1/8.

The New Cranwell Entry.

The following are declared by the Civil Service Commissioners to be the successful candidates at the examination held in June for admission to the R.A.F. Cadet College at Cranwell :—

*Elias, A. W., 8,595 marks; Don, J. C., 8,504; *Brookes, H. H., 8,332; Amers, J. H., 8,143; Bowles, J. E. W., 7,640; *Showers, L. J. G., 7,377; *Boyle, D. A., 7,083; Bonham-Carter, J. H., 6,742; *Montgomery, A. H., 6,655; Woode, C. S. M., 6,177; *Waghorn, H. R. D., 6,017; *Tillard, L. R. W., 5,371; *Selwyn, F. E. J., 5,344; *Soames, T., 5,200; Macleod, H. G., 5,072; Terry, P. McK., 5,037; Blackett, C. D., 4,823; Matthews, G. S. C., 4,814.

Honorary King's Cadets Who Have Qualified.

*Atcherley, D. F. W., 6,122 marks; *Atcherley, R. Ll. R., 4,791.

* These candidates have received marks for military efficiency.

This term the marks obtained are not so good as those of last term. None of the cadets would have passed for Woolwich, whereas the head boy last term would have been nearly at the top of Woolwich.

Mr. Elias would have been 12th for Sandhurst, and eight of the Cranwell cadets would have failed for Sandhurst.

However, the cadets may console themselves with the fact that book-learning does not necessarily make an officer, and that some of the officers who have the very finest war records, both in the Army and in the R.A.F., were chiefly notable at school and in their early Service careers for their inability to pass examinations.

Holt & Co.'s Claims.

With reference to the case recently reported in this paper wherein Holt and Co. sued Col. Law Markham for the refund of a sum alleged to be overpaid in respect of gratuity, it will be remembered that Mr. Justice Lush decided against Holt and Co., and in favour of Col Markham.

As was then pointed out, there is a possibility of Holt and Co. appealing against that decision. The result of such an appeal, if it is brought, will be of great importance to all officers who have been worried by Holt and Co., in regard to similar claims.

Mr. J. B. de Fonblanque, of 3 and 4, Lincoln's Inn Fields, who is acting as Col. Markham's solicitor, would therefore be glad to hear from any officers so interested, with a view to concerted action to meet the costs of such an appeal—as otherwise the whole costs will fall on Col. Markham personally.

Officers who are already in touch with Major R. Vernon C. Brook, of Queen's College Chambers, Birmingham, in regard to a case which has been brought by the same firm against him, should note that Major Brook is in touch with Col. Markham, and will act in harmony with the latter as far as possible.

The R.A.F. Athletic Championships.

The results of the Championship Meeting held at Henlow on July 20th were as follows :—

High Jump (Individual Championship) :—1, F/Cadet Nuttall (Cranwell), 6 ft. (Air Force Record). 2, S/M. Miller (Cranwell), 5 ft. 8 in. 3, AC. Slack (Cranwell), 5 ft. 7 in.

100 Yards Championship :—1, Cpl. Blythe (Cranwell). 10 2-10 secs. (Air Force Record). 2, F/Cadet Hayton (Cranwell). 3, F/O. Bayes (Uxbridge).

Tug-of-War :—Gosport beat Cranwell by 2 pulls to nil.

Putting the Shot :—1, F/Lt. Maxwell (11 Wing), 36 ft 8 in. (Air Force Record). 2, AC. Eldridge (10 Group). 3, S/Ldr. Burge (Cranwell).

880 Yards Championship :—1, Cpl. Palm (10 Group), 2 ft. 4 9-10 in. 2, AC. Dyer (1 Group). 3, Serjt. Taylor (Halton).

120 Yards Hurdles Championship :—1, AC. Slack (Cranwell), 16 6-10 secs. (Air Force Record). 2, F/Lt. Forster (Cranwell). 3, F/O. Baker (Uxbridge)

Long Jump Championship :—1, AC. Slack (Cranwell), 22 ft. 5½ in. (Air Force Record). 2, S/M. Miller (Cranwell), 20 ft. 5 in. 3, AC. Amos (Henlow), 19 ft. 9 in.

220 Yards Championship :—1, F/Cadet Hayton (Cranwell), 23 4-10 secs. 2, Cpl. Blythe (Cranwell). 3, F/O. Bayes (Uxbridge).

One Mile Championship :—1, Cpl. Clarke (Halton), 4 mins. 46 7-10 secs. 2, F/Lt. Irwin (Uxbridge). 3, Cpl. Palm (10 Group).

440 Yards Championship :—1, AC. Cracknell (7 Group), 53 2-10 secs. 2, Serjt. Rutley (Halton). 3, P/O. Ragg (11 Wing).

Three Miles Championship :—1, F/Lt. Irwin (Uxbridge), 16 mins. 6-10 secs. 2, AC. Landridge (Cranwell). 3, Cpl. Clarke (Halton).

Pole Jump (Open) :—1, W. Wihuri (Poly. Harriers), 9 ft. 3 ins. 2, F/O. Rogerson (11 Wing), 9 ft. 3, C.Q.M.S. Instr. Macey (Army Sch. of P.T.), 8 ft. 9 ins.

Throwing the Javelin (Open) :—1, Cpl. Waghorn (R. Corps of Signals), 138 ft. 0¼ ins. 2, J. Dalrymple (Bedford Harriers). 3, W. Wihuri (Poly. Harriers).

Long Jump (Team Championship) :—1, Cranwell. 2, 11 Wing. 3, Henlow. 4, Halton. 5, 10 Group 6, 7 Group.

High Jump (Team Championship) :—1, Cranwell. 2, 11 Wing. 3, Halton.

Three Miles (Team Championship) :—1, Halton. 2, Cranwell. 3, Uxbridge. 4, No. 1 Group. 5, No. 10 Group.

One Mile (Team Championship) :—1, Uxbridge. 2, Halton. 3, Cranwell. 4, No. 1 Group. 5, No. 10 Group. 6, No. 7 Group.

Two Miles Relay :—1, No. 1 Group (8 mins. 37 6-10 secs). 2, Cranwell. 3, Halton.

440 Yards Relay :—1, Cranwell (47 secs). 2, 11 Wing. 3, Halton. 4, Henlow. 5, No. 1 Group.

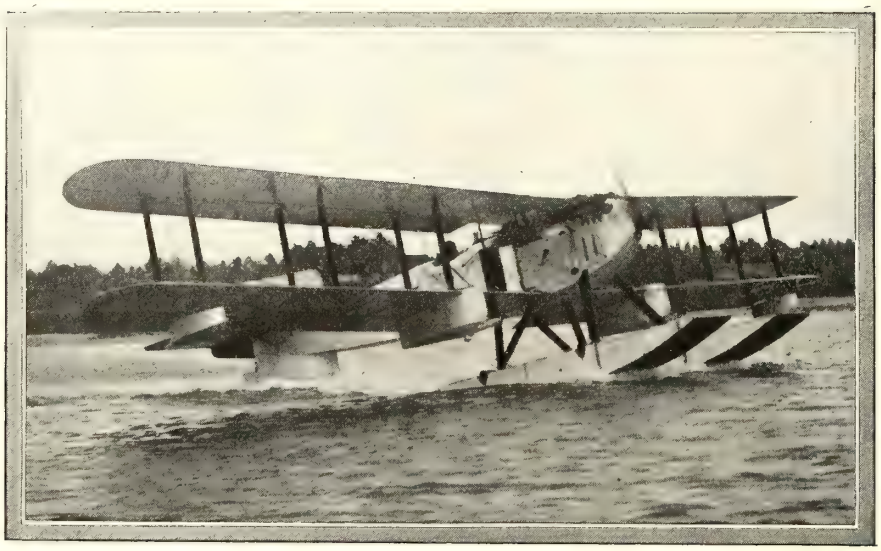
880 Yards Relay :—1, Cranwell (1 min. 37 secs). 2, Uxbridge. 3, No. 1 Group. 4, No. 7 Group. 5, No. 10 Group. 6, Halton.

360 Yards Hurdles Relay :—1, Cranwell (52 8-10 secs). 2, No. 10 Group. 3, No. 7 Group.

One Mile Relay :—1, Halton. 2, Cranwell. 3, No. 7 Group.

The King's Challenge Cup :—1, Cranwell (61 pts.). 2, Halton (33 pts.). 3, No. 10 Group (31 pts.). 4, No. 1 Group (25 pts.). 5, Uxbridge (24 pts.). 6, 11 Wing (19 pts.). 7, No. 7 Group (16 pts.). 8, Henlow (13 pts.). 9. Martlesham (4½ pts.). 10, Shrewsbury (½ pt.).

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ON THE AERIAL DERBY.

With that sheer contrariness which is common to the British Climate and to British Aviation, the Aerial Derby of 1922 contrived to be a huge success. After a pouring wet night and a threatening morning, with half a gale blowing from the west, the afternoon turned fine and warm, a goodly crowd (most of which had been prevented by the evil-looking morning from going farther afield) arrived to see the show, and the handicap which was cursed impartially by all the competitors turned out so well, with the help of a bit of ill-luck to one of the competitors, that the first three men home finished inside 28 seconds.

The starters and their handicap times were :—(1) Mr. Bert Hinkler on a " Baby " Avro (35 h.p. Green), 19m. 5s. handicap. (2) Mr. Larry Carter on the Bristol monoplane (100 h.p. Bristol " Lucifer "), 43m. 40s. (3) Mr. F. P. Raynham, " Tinsyde " F.5 (200 h.p. " Viper "), 37m. 6s. (4) Mr. A. S. Butler, D.H.37 (275 h.p. "Falcon," Rolls-Royce), 31m. 5s. (5) Mr. H. H. Perry, S.E.5a (200 h.p. " Viper "), 28m. 5s. (6) Capt. Rex Stocken, " Tinsyde " F.4 (300 h.p. Suiza), 25m. 9s. (7) Mr. L. R. Tait-Cox, Gloucestershire Mars III., otherwise " Sprawk " (200 h.p. Bentley 2), 28m. 24s. (8) Mr. R. A. de H. Haig, Bristol "Bullet" (400 h.p. Bristol "Jupiter "), 15m. 4s. (9) Mr. J. H. James, Gloucestershire Mars I, otherwise the " Bamel " (450 h.p. Napier " Lion "), scratch.

Unfortunately the much-expected Bristol monoplane with the "Jupiter," which should have been on the scratch mark 3m. 29s. behind the " Bamel," could not be got ready in time, chiefly because of delays caused by the engineers' strike. The " spinner " for the airscrew could not be finished, and though Mr. Uwins flew her for half-a-dozen short test flights he had not enough experience of her to make it safe to take her across country. It was a pity, for she would have caused a sensation. Her huge egg-shaped body (whose diameter is determined by the size of the " Jupiter " engine), with its tiny little cantilever wings sprouting out of the bottom (Junkers-fashion), and the weird bowed tubes of the undercarriage which follow the section of the fuselage when the wheels are tucked up into the wings, make her the strangest aircraft in this country. She is more like a half-hatched egg than anything else, but she looks horribly fast, and Mr. Uwins says she is all that she looks. It was at any rate good news to hear that she is to go to France for the Deutsch Cup race next month, and one wishes her the best of luck.

THE START.

There was nothing emotional about the start. The wind was strong enough to give even the fastest machines a good lift before they reached the level crossing, starting from a line close to the Disposal Company's premises. Mr. Hinkler's " Baby " went up like a kite and jumped about like one. How he stands the bouncing he gets passes comprehension. Mr. Carter's start was unusually clean and neat. Mr. Raynham got away with his customary address, but it was evident at once that he had not the speed to catch the Bristol monoplane.

Mr. Butler could not have won in any case, for the D.H.37 is nothing like as fast as the handicap made her out to be. But apart from that he had bad luck, for just as he was running up his engine to start it began misbehaving and it was found that a carburetter float had punctured and was flooding his inlet pipes. By the time a new one had been fetched and fitted he was a quarter of an hour or so behind his proper starting time. Nevertheless he started, like the sportsman he is, did quite a respectable first circuit, covering the 100 miles in 54½ minutes, and then retired being obviously out of it.

Mr Tait-Cox made a very pretty start on the " Sprawk,"

(Continued on page 113.)



AT THE AERIAL DERBY : The Winner getting off. The Bristol " Bullet " taxying out. Mr. Longton's S.E. starting The crowd watching the Gloucestershire " Mars, VI. The Aircraft Disposal Co.'s premises are seen in the background.

VICKERS LIMITED

Brief Specification:
"Viking" Mark IV.
6 Passengers and Baggage, or 1,360 lbs. Freight.
RANGE: 340 miles. SPAN: 50 ft. HEIGHT: 15 ft. 1 in. LENGTH: 35 ft.

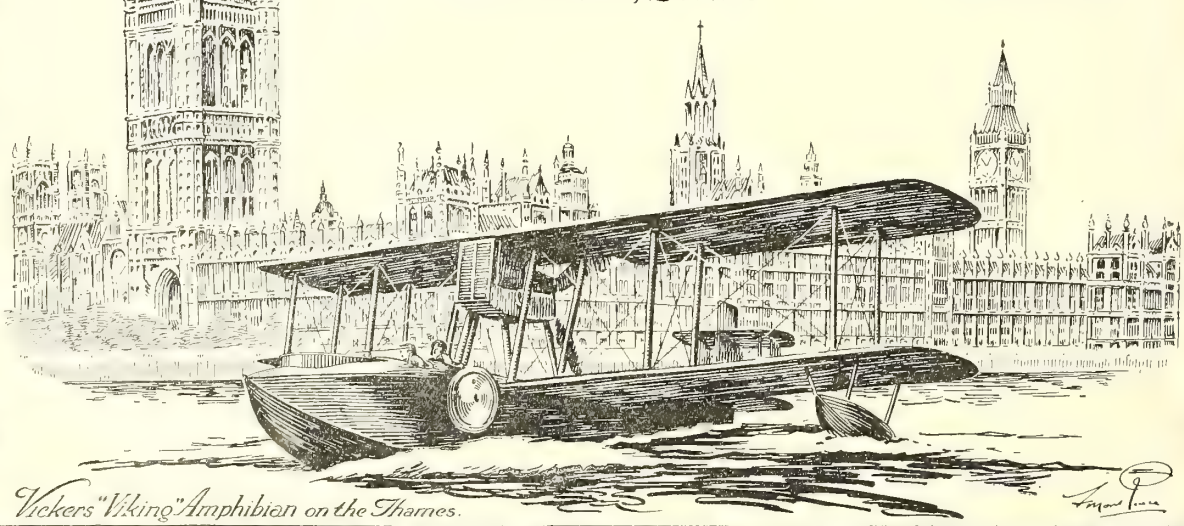
The Vickers "Viking" was the winner of the FIRST prize of £10,000 for the Amphibian Class of Aircraft entered for the BRITISH AIR MINISTRY COMPETITION, September, 1920.

The Vickers "Viking" was classified FIRST in the following competitions at the INTERNATIONAL SEAPLANE COMPETITIONS at ANTWERP, July, 1920.
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THE WEEKLY COMMENTARY.

The report of the Aeronautical Research Committee for the year 1921-22 is reviewed in this issue. This report contains a considerable amount of interesting information and is in the main a record of useful work well done. Such criticism as can usefully be made is due rather to the difficulties of the Committee's position under present circumstances than to the defects of the Committee itself.

A note records the extremely satisfactory performance of a Napier "Lion" engine during the course of an officially observed type test under the most recent regulations.

A new Commercial aeroplane, built by the Société "Aero," of Prague, is described in this issue. This is, one believes, the first machine designed for purely commercial purposes to be produced in any of the new States which have come into being since the war. The Czecho-Slovakian Aircraft Industry has already produced a number of interesting military and sporting-type aeroplanes, and has shown itself to possess a high degree of technical skill.

Reference was made in these notes last week to certain International events of the future which, it was stated, were mentioned on a later page. This page was deleted from the paper by an higher authority after this note had been written, without, however, deleting the reference. The missing matter—so far as can at present be foretold—will appear in this issue.

THE AERONAUTICAL RESEARCH COMMITTEE.

The report of the Aeronautical Research Committee for the year 1921-22, dated May, 1922, has recently been published It is not a particularly thrilling document, but both in the report itself and in the appendix thereto there are to be found certain items of appreciable interest.

The Committee make a very strong plea for the continuance of the financial support necessary to carry on research in aerodynamics. The economy campaign threatened in September, 1921, to put an end to much of their work, but arrangemenets were in fact made to secure the continuance of the work, though under certain restrictions. It is pointed out that the whole work supervised by the Committee costs about one per cent. of the total vote for the R.A.F. and the Air Ministry, and that the sum which would have been received for R.38, had that ship been a success, would have supported the research work of the Committee for five years. As it is claimed that the advice of the Committee, if sought and followed, would have saved the ship from wreck, the argument is sound enough.

The Weak Point of the Research Committee.

There cannot be the slightest doubt that the discontinuance of research work in order to save the relatively paltry sum involved in its continuance would be foolish in the extreme. The Committee, however, ought to realise that they will secure more sympathetic consideration of their claims on the public purse if they turn their attention to increasing the value of their work rather than to decreasing the minor expenditure involved in their present methods of work.

For instance, although it seems to have been established that the accident to R.38 could have been predicted from data which was available to the Committee, it is practically admitted that that data was only proved to have been reliable by the said accident. This fact is not directly chargeable to the Committee as a matter of fact. But it is very doubtful whether R.38 would have been built at all if the advice of the Committee had been sought and followed in the first place. And in many other respects the Committee has shown itself not to be alive to the practical needs of the moment, to have tended to restrain new developments by casting doubt on their utility or possibility and it has often embarked on research work only after independent experiment has led the way.

Control at Slow Speeds.

A case in point may be extracted from the appendix to the present report. Referring to the problem of securing adequate control at low speeds, it is said that "comparative experiments have been initiated on three Avros fitted with (1) normal type ailerons (2) with interplane floating ailerons (3) with a specially large rudder, and (4) with a special type of control, the operation of which gives rise to a yawing moment of reverse sign to that caused by normal ailerons." Other tests will be made with ailerons floating, or rigged up 15 degrees relative to the wing, and possibly with a differential motion causing the aileron which is raised to move more than that which is lowered.

All these various forms of control are deserving of test. But the point is that—except possibly that given under (4) as to which no details are given—all these variants of the usual control have actually been used in real aircraft and the experimental work now in hand ought to have been undertaken literally years ago.

Machines which could be controlled at angles of incidence far beyond the stalling angle have been known to pilots for many years, and delay in the investigation of these qualities until 1922 should certainly not have occurred.

The Real Difficulty.

A good deal of the complaints which can be made against the work of this Committee result from the control by the same body of fundamental research work in aerodynamics and of experiment in practical aeronautics. Both types of work are essential to progress—but the mental equipment suited to control the two branches is rarely combined in one body. At present the experimental work is largely controlled by those who are mainly interested in fundamental research. Doubtless this produces less disastrous results than would the control of fundamental research by practicians, but it has very serious drawbacks.

It is undoubtedly impossible to draw any hard and fast line between the two branches of the Committee's work, and fortunately the whole difficulty is purely a temporary one, for it will disappear as soon as the aircraft industry is in a sufficiently healthy state to carry out its own experimental work on independent lines. At present, when the only experimental craft that it is possible to produce have to be built to official orders and official specifications, the results of the control of experiment by the Committee cannot be considered to be happy.

Aerodynamics

Apart from this weakness, the work of the Committee seems to have been maintained at a high standard. The theoretical investigation of fluid motion has been carried on, the theory of aerofoils developed at Göttingen by Prof. Prandtl has been studied, its practical validity to some extent verified, and it has been applied to the theory of the airscrew—not, however, for the first time.

A series of models, which are to be circulated to various wind channels in order that a basis for the comparison of the

results of the various laboratories may be obtained, have been built and tested at the N.P.L. and at Farnborough, and they have now begun their travels.

A good deal of work has been carried out for the correlation of model and full scale results. Apparently the further this work is carried the more puzzling become the problems —at any rate, since the comparatively recent tests of R.A.F.19 on the full scale—which showed a considerably lower maximum lift coefficient in full scale than in the model.

Much model work on stability and control has been done and is still in progress. Routine tests on wing sections continues, and from tests of certain modifications in the form of humps on the under surface it appears that such humps, suitably placed, can be made to reduce the drag of certain types of section. (This observation is interesting in the light of Dr. Hankin's statements as to the ridged under surface of the wings of soaring birds.)

A number of special matters dealing with wing sections have been referred to the Committee by the Air Ministry for their opinion. Among these were the merits of the "Alula" system of wing design. The Committee state that such full-size data as was available was inadequate, but that the ratio of maximum to minimum speed was no greater than the normal. Model tests did not indicate that the complete wing was superior to more normal types, and after consideration of the general theory advanced it was decided on both theoretical and experimental grounds that no action involving Government expenditure could be recommended.

One may express regrets that the Committee should have come to this decision. It is known that the theory advanced in favour of the Alula system is an ingenious one, and that the Committee had great difficulty in rejecting it to their own satisfaction. It is also one which, if it be correct, cannot be checked experimentally by model tests alone. A full scale experiment could certainly have been devised at a very small cost, which would have demonstrated whether or no the claims made for this type of wing were in any way substantiated in practice. One has no reason to believe that the Committee were wrong in their actual conclusion, but their method of arriving at it appears to be open to criticism.

Engines.

The work of the Engine Sub-Committee during the year in question has been directed to mainly practical ends. The Air Ministry has been asked to collect and supply such data as exists for the service of certain engines in France during the war. This is to be analysed and collated with a view to investigation of the cause of engine failures. For the same purpose a list is to be made of unsuccessful flights at R.A.F. stations due to engine failure. It is hoped to settle the controversy as to whether the engine itself or the engine auxiliaries are most usually at fault.

Failures of sparking plugs appear from statistics to be extremely frequent causes of trouble, but investigation makes it apparent that the spark plug is, in fact, far more satisfactory than might at first be inferred. Much of the trouble is due to the absence of any systematic effort to fit plugs only to engines for which they are suitable. Also a numerical record of plugs used is swollen by the fact that it is often quicker and simpler to change a whole set than to locate the faulty plug. In the main the reliability of plugs is largely a matter of workmanship.

A programme of research on the problem of detonation is in progress at the N.P.L. The problem of the design of big end bearings for high speed aircraft engines is under study, and a testing machine has been put in hand at the Ricardo Laboratory for the N.P.L. This machine has been designed to give a crank stroke of 7 inches, and reciprocating masses of 10 lbs. can be used over a speed range up to 4,000 r.p.m.

Much work on fuels is contemplated, and hopes of attaining greatly improved economy are entertained. The use of hydrogen mixed with other fuels has been investigated. A large economy is obtainable, but owing to discontinuance of airship work the experiments have been stopped.

The B.M.W. engine, which is of phenomenal fuel economy, is being carefully investigated.

Water is not a suitable fluid for cooling in hot climates, and the use of fluids of high boiling points is being considered. A trial of the oil used for cooling transformers is to be made. This will mean that the temperature will be considerably higher than that of the ordinary water-cooled engine, and there will possibly be an appreciable drop in the engine-power. This would bring into prominence the alternative of using air-cooled engines in tropical climates.

Meteorology.

The Meteorological Sub-Committee are responsible for work of other than directly aeronautical import. Indirectly all increase in the knowledge of this subject has its bearing on aeronautical affairs, but of the work recorded that relating to fogs, their depth and distribution, is of greatest import.

Experiments with various types of rockets, etc., for guiding aircraft to land in fog have been made, and it is believed that fog should not now prevent successful landing in any well-equipped aerodrome. It is also recorded that the Director of Research is experimenting with leader cables for the guidance of aircraft, and that an instrument is now being designed which will inform the pilot whether he is to right or left of the cable, and what is his height above the ground, to an accuracy of about 6 ft. (This system is based on the same principle as the widely advertised French "Loth" cable guide.) Work on navigational instruments is also within the province of the Meteorological Sub-Committee. Steady progress in the design and use of such instruments appears to continue—but nothing of a startling nature appears.

Fire Prevention.

The Fire Prevention Sub-Commitee published reports in May and December, 1921, which have in general been followed by aircraft designers. The present report discloses nothing which has not already been published, except that a report dealing with fire prevention on multiple engined craft will, it is hoped, shortly be available. The percentage of fires on crash with such machines is high. In explanation it is observed that the fuel systems are usually complicated.

Materials and Chemistry.

Tests of materials continue, the main items of research being in regard to fatigue of metals, and on the melting and casting of aluminium alloys.

Accidents.

The Accident Investigation Sub-Committee have had much work to do in connection with airship accidents. The chief of these was that to R.38, and their conclusions in this case have long been public property. Two other accidents occurred to R.36. The first was the collapse of two fins in the air, the second the damage to the ship's bows due to over-riding the mooring mast in an attempt to moor.

Load Factors.

The Load Factors Sub-Committee have very recently issued a report which has already been dealt with in these pages. The Sub-Committee hopes in time to be able to recommend a logical system for the stressing of aircraft, and have already outlined methods which should be adopted. They cannot recommend the adoption of such a scheme in the present inadequate state of knowledge, however.

The report, which is numbered T.1702 (cmd.), is published by H.M. Stationery Office, price 2s. 6d. net.

TYPE TEST OF THE NAPIER LION ENGINE.

Starting on March 12th last, a Napier "Lion" engine was subjected to a type test under Air Ministry supervision. The same engine is understood to have previously passed two type tests, each under different regulations, and has now completed over 160 hours under official observation in such tests alone. The last of these tests was made under the new regulations which call for the 50 hour test being made in five runs each of 10 hours non-stop, and this particular engine was the first to pass a type test under these conditions.

During the whole test the running was satisfactory and no replacements of any part whatever were required.

The tests made consisted of a two hours' run (March 12th) at 2,006 r.p.m. and a mean b.h.p. of 413, the last five minutes at full throttle; a seven minutes' run (March 13th) for the taking of a power curve, followed by a ten hour runs on March 13th, 14th, 15th, 16th, and 17th. Except for the last run these runs were made at powers varying between 410 and 412 b.h.p., with five minutes' full throttle at the conclusion. On March 17th the last hour was run at nominal h.p. and speed—452 b.h.p. at 2,045 r.p.m.

On March 18th ten minutes' low speed test (8.56 b.h.p. at 487 h.p.m.) one hour's high speed (346 b.h.p. at 2,207 r.p.m.), one hour's full throttle (511 b.h.p. at 2,239 r.p.m.) and 20 minutes' slow speed (8.26 b.h.p. at 449 r.p.m.) were made. These tests were followed by a final seven minutes' run for the taking of a second power curve.

The total running time was thus 54 hours 44 minutes. The petrol consumption at 410-412 h.p. during the five ten-hour tests varied between .489 and .497 pints per h.p. hour; the oil consumption from .0151 to .020 pints per h.p. hour.

The figures for the whole test show an extraordinary regularity in regard to speed, and power, and petrol consumption, and accord well with the known characteristics of this type of engine.

"The 450 H.P. Napier-Lion is generally recognised as being the *most reliable* aero engine in the world."

Evening News, London, 17th July, 1922.

NAPIER

Aero Engines

A Napier-Lion aero engine has recently achieved an unprecedented test of 165 hours (equivalent to over 20,000 miles flight), under the official observation of the British Air Ministry, including:—

Reliability—5 consecutive non-stop runs of 10 hours' duration each at an average horse-power of 411.8, this being the FIRST time such a test was completed by any aero engine. A further 5 non-stop runs of 10 hours' duration each at an average horse-power of 398.7.

High Speed—3 periods of one hour's duration each at an average horse-power of 500.

Average power throughout run- 405.9 horse-power
Highest power for one hour - 512 „ „
Average Petrol Consumption - 517 pints per H.P. hour.
Average Oil Consumption - .017 „ „

In the last British Government aircraft competitions the only engine fitted to the machines to secure the highest prizes in all three classes was the Napier-Lion.

The 4/50 H.P. Six-cylinder Napier is built on the same principles and of the same high class materials as the famous 450 H.P. Napier aero engine.

D. NAPIER & SON, LTD.,
14, New Burlington Street, W.1.
Works: Acton, London, W.3.

A CZECHO-SLOVAK COMMERCIAL AEROPLANE.

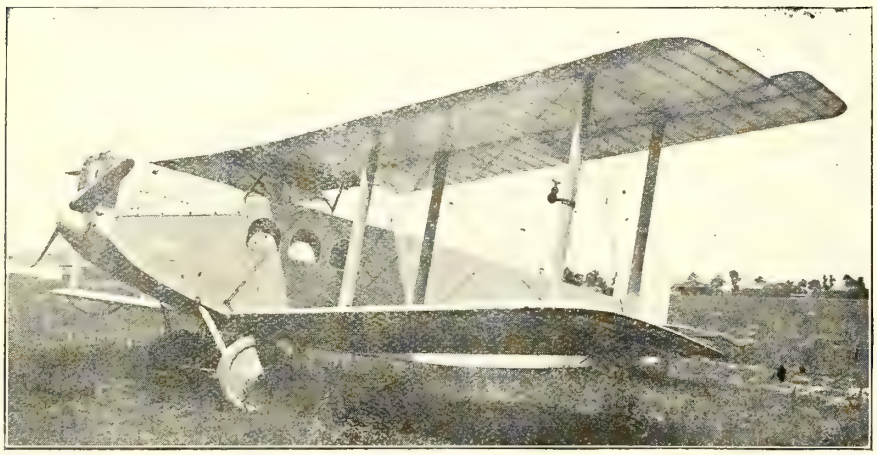
The Société "Aero" of Prague have produced during the last three years two or three interesting types of aircraft but hitherto these have been of the fighting scout or "pursuit" and school types.

Their most recent production is, however, a five-seater cabin machine, and as such is the first Czecho-Slovak commercial aeroplane.

This machine, known as the Ae.10, is a normal single-engined fuselage biplane and is destined to be used on the Prague-Vienna and the Prague-Dresden air services which are due to begin operations at the end of July. Construction on these machines was begun in 1921 with this object in view, and the specifications laid down by the Minister of Public Works for a robust machine, have been met in a satisfactory manner. The Ae.10 has during the last four months shown itself to be eminently suitable for the purpose for which it has been designed. It is easy to fly, climbs and flies well with full load after a short run to take off, has a flat gliding angle and lands slowly. It can be fitted with any six-cylinder engine from 260-350 h.p., and is actually fitted with a 260 h.p. Maybach Mb. Na, a number of which were left in the country by the Germans.

The fuselage is built up of four longerons and is three ply covered throughout. The passenger cabin is carried between the planes and is isolated from the engine by a fire-proof bulkhead. Three comfortably upholstered seats, two facing towards the tail and one on the left side facing forward, are permanent fixtures, while two small folding tables which are easily convertible to seats give accommodation for five passengers within the cabin. Behind the cabin, and in the lower half of the fuselage is a luggage compartment of 180 x 90 x 60 cm capacity. Above this compartment is the pilot's cockpit with accommodation for pilot and mechanic.

The undercarriage is particularly robust and consists of, viewed from the front, three M's, the basis of the M's terminating in an axle carrying two very large diameter wheels. Viewed from the side, the undercarriage looks like an ordinary vee type with an additional leg mounted vertically over the axle. The arrangement is shown in the attached scale drawing.



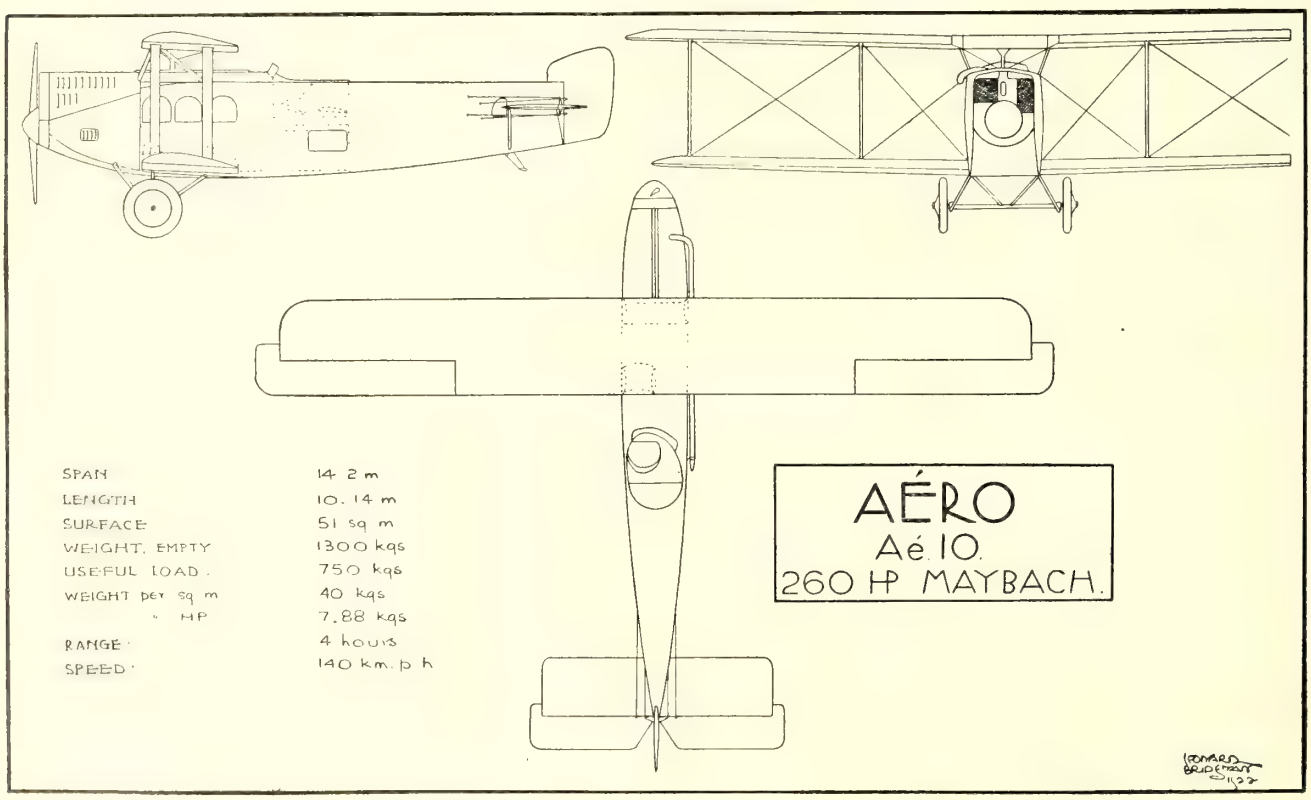
The Aé.10, a five-passenger machine, built by the Aéro Works of Prague, for service on civil transport lines between Prague and Austria and Germany.

This machine is the first purely commercial type to be produced in Czecho-Slovakia. The evidence seems to indicate that this country intends to maintain a high position among the aircraft-producing countries of the world

The petrol system consists of a main tank in the roof of the fuselage and a gravity tank built into the centre section, the petrol being fed from the main tank by pump to the gravity tank and thereafter is gravity fed to the carburetter

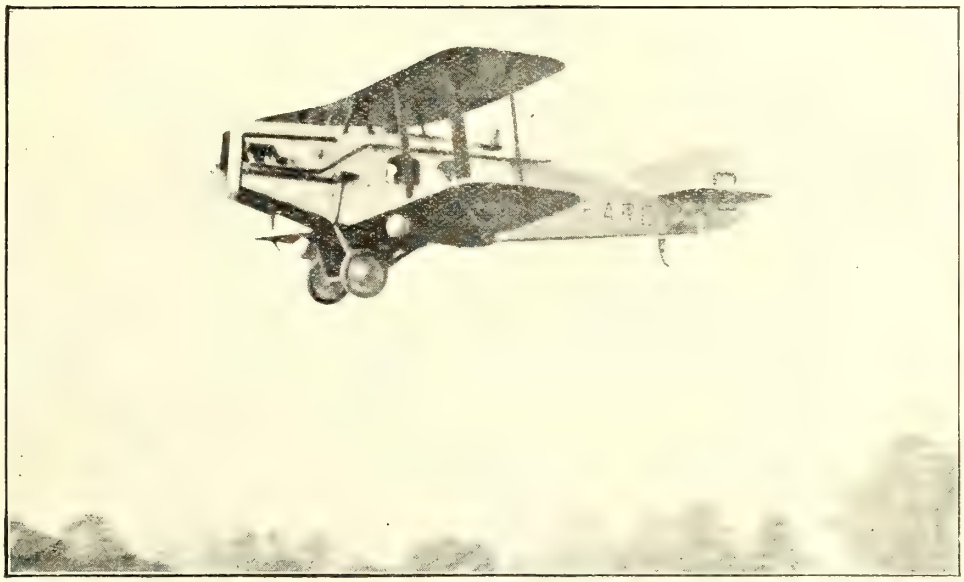
The wings and tail plane are of normal type and construction and are fitted with balanced ailerons and elevators. The fuselage being very deep throughout its length, no fin is fitted, the rudder, of ample dimensions, being hinged direct to the vertical knife edge.

The principal dimensions are shown on the scale drawing



FRESH AIR

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PARIS

Mr. A. Baldwin Raper, M.P., writing in the Daily Mail, pays a tribute to the WESTLAND LIMOUSINE, he says:—

"On June 7th I flew from London to Paris in a WESTLAND aeroplane together with my wife, who—apart from being a bad sailor—had only previously been up in the air for a few brief "joy rides." We had the window full open all the way, and although we passed through about fifteen minutes of quite rough weather over the French coast, my wife felt absolutely fit both during the flight and after arrival at Le Bourget."

WESTLAND LIMOUSINES ensure Reliability and Comfort in Aerial Travel.

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"And the workmanship throughout shows that the Gloucestershire Aircraft Co. Ltd. is worthy to rank among our best Aircraft Constructors, which is to say among the world's best."—*The Aeroplane, July 20th, 1921.*

SUNNINGEND WORKS CHELTENHAM ENGLAND

Winners of the Aerial Derby, 1921

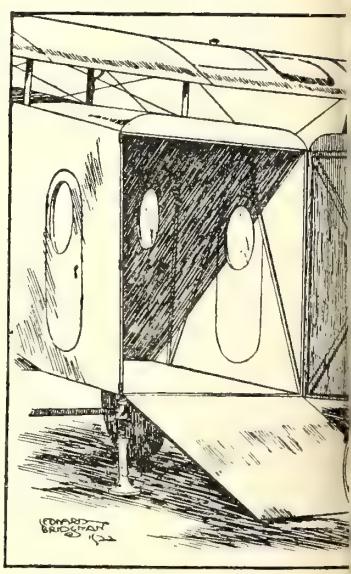
ANOTHER FINE

Winners of the Aerial Derby, 1922



MARS IV. (Fleet Type).

CONTRACTORS TO THE BRITISH AIR MINISTRY.



GOOD



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THE GLOUCESTERSHIRE AIRCRAFT CO. LTD. CHELTENHAM



MARS III. (B.R ? Dual Control).

l Record, 196.6 miles per hour.

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"Et la main d'œuvre d'un bout à l'autre montre que le Gloucestershire Aircraft Co. Ltd., mérite une place dans le premier rang des constructeurs d'avions c'est à dire qu'ils sont parmi les meilleurs du monde."-*The Aeroplane, July 20th*, 1921.

Fastest Time and 1st in Handicap.

PERFORMANCE.

Fastest Time and 3rd in Handicap.



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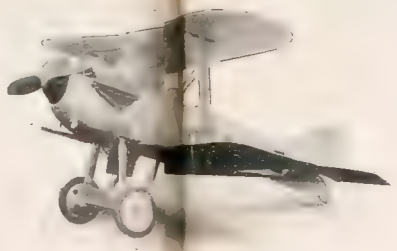
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MARS VI. Jaguar Engine)



MARS II. (Single-Seater Fighter).



MARS I. (Banked with Napier Engine.)



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"And the workmanship throughout shows that the Gloucestershire Aircraft Co. Ltd. is worthy to rank among our best Aircraft Constructors, which is to say among the world's best."—*The Aeroplane, July 20th, 1921.*

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SUNNINGEND WORKS CHELTENHAM ENGLAND

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"Et la main d'œuvre d'un bout à l'autre montre que le Gloucestershire Aircraft Co. Ltd., mérite une place dans le premier rang des constructeurs d'avions c'est à dire qu'ils sont parmi les meilleurs du monde."—*The Aeroplane, July 20th, 1921.*

Winners of the Aerial Derby, 1921.—Fastest Time and 1st in Handicap.

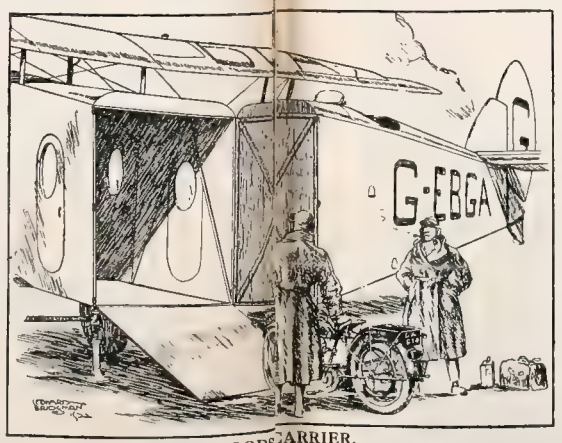
ANOTHER FINE PERFORMANCE.

Winners of the Aerial Derby, 1922.—Fastest Time and 3rd in Handicap.



MARS IV. (Fleet Type).

CONTRACTORS TO THE BRITISH AIR MINISTRY.



GOODS CARRIER.

CONTRACTORS TO FOREIGN GOVERNMENTS.



MARS VI Jaguar Engine)

THE ROYAL AERONAUTICAL SOCIETY.

OFFICIAL NOTICES.

At a Council Meeting of the Royal Aeronautical Society held on July 18th, it was decided to award the Society's Silver Medal for 1921 to Mr. H. R. Ricardo for his paper entitled "Some Possible Lines of Development in Aircraft Engines." The Silver Medal will in future be awarded annually to the author of the paper which is, in the opinion of the Council, the best paper of those published in the *Aeronautical Journal* each year.

AN INTERNATIONAL OPPORTUNITY.

The Royal Aero Club of the Netherlands is holding an International Aviation Festival at Rotterdam from September 2nd to the 17th. This is known officially as the International Concours Aviatique, Rotterdam, which is abbreviated to I.C.A.R. £3,500 is being given in prize money for twelve different events, three of which are purely for commercial aeroplanes. There are also photographic competitions, fighting competitions, formation flying competitions, a speed contest with a first prize of £250, so that altogether there is quite a tidy sum of money to be won by competing machines. The Rotterdam Aerodrome is one of the finest in the world, and close alongside it is a huge harbour from which seaplanes can operate.

A valued correspondent in Holland says that the French authorities have promised all kinds of things for the show, Military and Naval squadrons and so forth, and that it was worrying to hear people at the preliminary meeting concerning this festival saying, "Ah, yes! England was at the head of aviation in 1918, but now they are quite out of it."

As French and Belgian Naval aviators will be represented at the I.C.A.R., one ventures to suggest that it would be in the interests of Great Britain, as a nation, to send a formation of R.A.F. machines to "Show the Flag" at Rotterdam. There are bound to be representatives of the Scandinavian countries and practically all the world at Rotterdam, which is one of the most cosmopolitan ports, so it would be highly beneficial if we could send a few really modern amphibians such as "Puffins," "Pintails," "Seals," and so forth to this meeting, where they would have an ideal opportunity of demonstrating their amphibiousness. A "Siskin" and a "Wagtail" might demonstrate that our single-seaters are still somewhat rapid and the little Bristol monoplane could show that Germany is not alone in producing the "sports" type of machine.

After all, Rotterdam is quite a short flight from Lympne, so that the expense would be little greater than sending the machines to Brussels. Also the Dutch are a most friendly and hospitable people and one can guarantee that British visitors to Rotterdam will have the time of their lives. Full particulars of the meeting can be obtained from the Secretariat of the I.C.A.R., Stadhuissteeg No. 1, Rotterdam.—C. G. G.

A MIDLAND TRIUMPH.

At the Foundry Exhibition held recently at Bingley Hall, Birmingham, a national competition for foundry employees was held. It is interesting to note that employees of the Midland Motor Cylinder Co., Ltd., Smethwick, were successful in taking prizes as follows:—Three for core-making, one for moulding, and one for pattern-making

The Midland Motor Cylinder Co., Ltd., were particularly notable during the War for the excellent cylinder castings produced by them for various aero engines, especially air-cooled cylinders for British-built Renaults and R.A.F. engines —hence their telegraphic address, "Rafwork, Smethwick." One hopes to hear of the firm doing more good work for the R.A.F. in the future when Parliament finds the money for new material.

THE INTERNATIONAL AIR CONGRESS, LONDON, 1923.

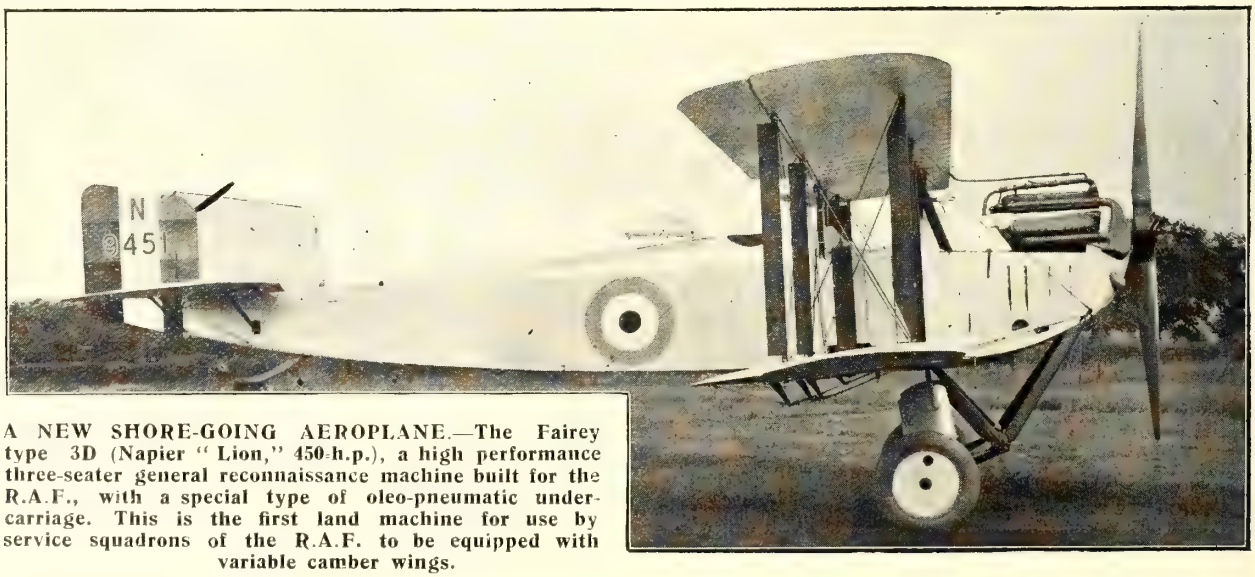
Following on the Congrès International de la Navigation Aérienne held in Paris in November, 1921, it is proposed to hold a similar congress in London towards the end of June next year. Group Captain H.R.H. the Duke of York, K.G., G.C.V.O., R.A.F., has consented to become President of the General Council of the Congress and the Right Honourable the Lord Weir of Eastwood, P.C., has accepted an invitation to become a Vice-President. A strong Organising Committee representative of all phases of British aeronautical activity, including the Air Ministry, has been formed, with His Grace the Duke of Sutherland as Chairman. This Committee is constituted as follows:—

VICE-CHAIRMEN:—Major-General Sir F. H. Sykes, G.B.E., K.C.B., C.M.G.; Major-General Sir W. S. Brancker, K.C.B., A.F.C. (Director of Civil Aviation); Lieut.-Col. M. O'Gorman, C.B.; Sir Henry White-Smith, C.B.E.; Lieut.-Col. J. T. C. Moore-Brabazon, M.C., M.P.; Brig.-General P. R. C. Groves, C.B., C.M.G., D.S.O. MEMBERS:—(Air Ministry) Brig.-General F. L. Festing, C.B., C.M.G.; Brig-General R. K. Bagnall-Wild, C.M.G., C.B.E.; Air Commodore J. M. Steel, C.M.G., C.B.E. (Royal Aeronautical Society) Lieut.-Col. A. Ogilvie, C.B.; Mr. Griffith Brewer; Lieut.-Col. W. Lockwood Marsh. (Royal Aero Club) Col. F. Lindsay Lloyd, C.M.G., C.B.E.; Lieut.-Col. F. K. McClean; Lieut.-Cmdr. H. E. Perrin. (Society of British Aircraft Constructors) Mr. C. R. Fairey; Capt. P. D. Acland; Mr. Charles V. Allen. (Air League of the British Empire) Mr. G. Holt Thomas; Hon. Sir Newton Moore, M.P.; Mr. Shirreff Hilton. (Air Transport) Sir Samuel Instone; Mr. F. Handley Page; Col. F. Searle. (General Post Office) Brig.-General Sir F. H. Williamson, K.C.B., C.B.E. GENERAL SECRETARY:—Mr. Charles V. Allen. TECHNICAL SECRETARY:—Lieut.-Col. W. Lockwood Marsh, O.B.E.

Membership will be divided into two classes: (a) Ordinary Members, and (b) Associate Members, comprising the families of ordinary Members, at a subscription of £1 and 10s. respectively. According to present arrangements the Congress will occupy one week during the last fortnight in June, 1923, the reading of papers alternating with visits to various aircraft factories and establishments. It is hoped that the Air Ministry will be able to arrange for the Royal Air Force Pageant to take place on the Saturday of the Congress week and that the Royal Aero Club may organise a race meeting on the Tuesday or Thursday. Monday, Wednesday and Friday will be devoted to the reading of papers, and discussions thereon, which will be divided into four or more main groups or sections which will hold simultaneous sessions in different rooms.

AN INTERNATIONAL EVENT.

The Aero-Club de Suisse is organising an International Aeroplane Meeting at Zurich, from September 3rd to 10th. Various countries will be represented, but it is to be feared that no British firm will be able to afford the expense of sending aircraft to represent Great Britain. If any firm should entertain the idea of sending a machine to Zurich, they are invited to communicate with the Secretary, M. I. V. Koschel, Aero-Club de Suisse, Rue Raemi 5III, Zurich.



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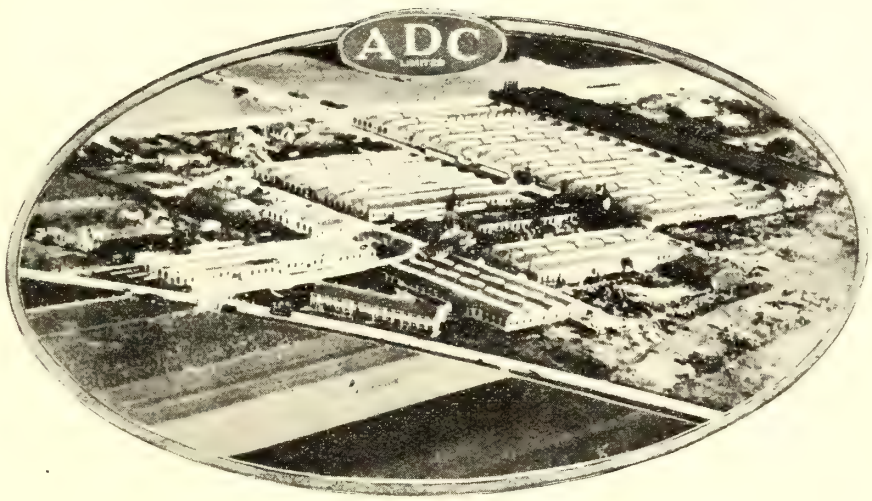
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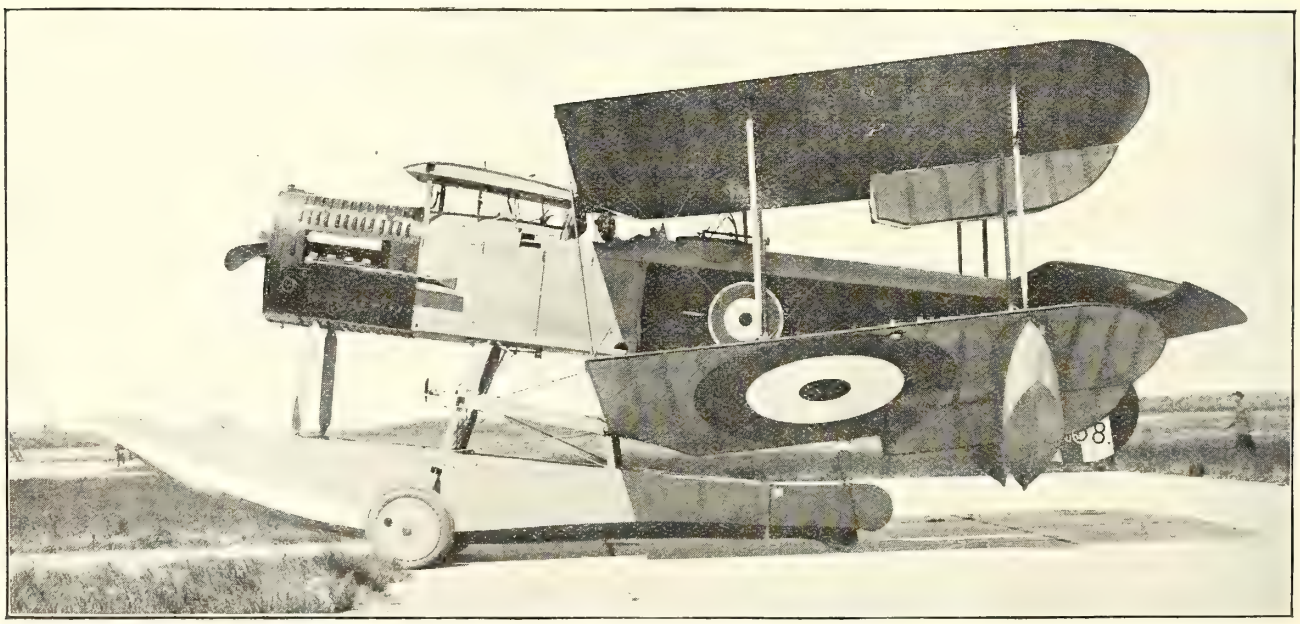
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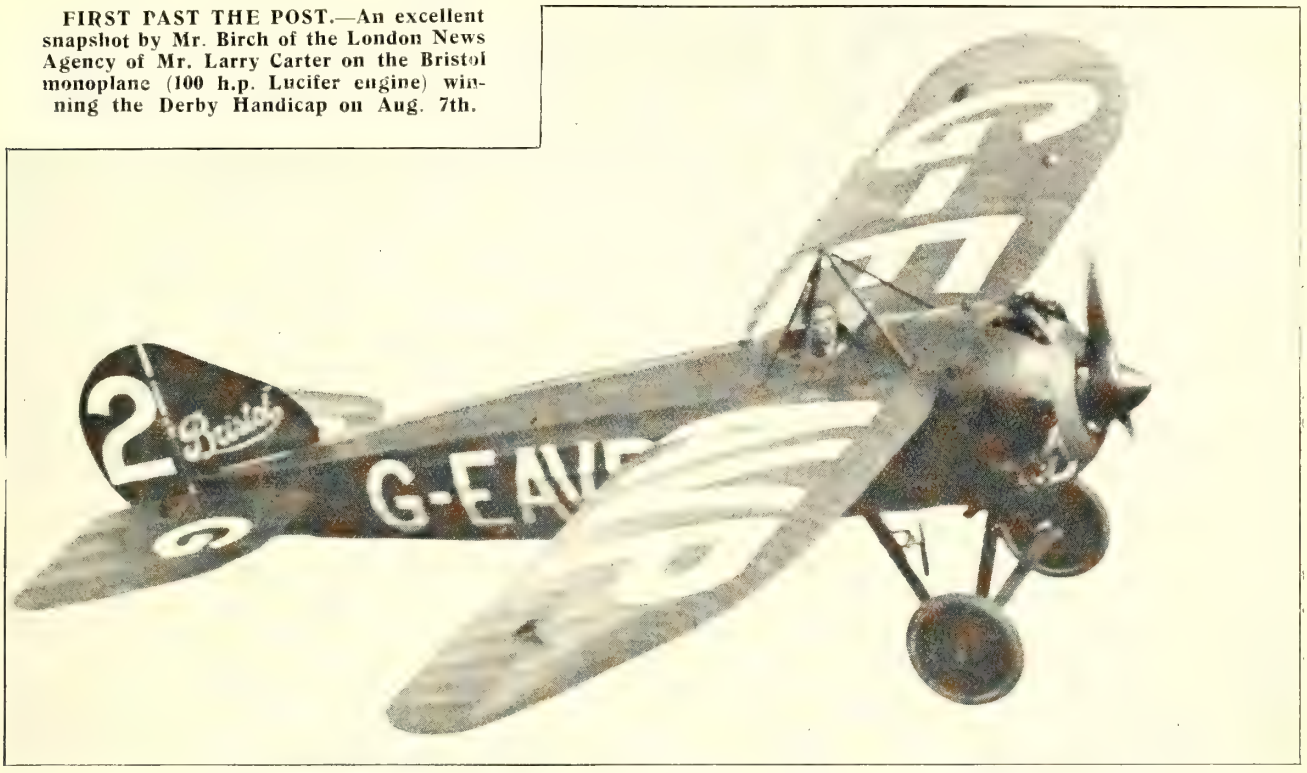
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FIRST PAST THE POST.—An excellent snapshot by Mr. Birch of the London News Agency of Mr. Larry Carter on the Bristol monoplane (100 h.p. Lucifer engine) winning the Derby Handicap on Aug. 7th.



(Continued from page 101.)

which, with a pale-blue fuselage and white wings, is distinctly a pleasing sight. But he was handicapped to do about 130 m.p.h. to win and was only doing 112 m.p.h., so at the end of the first lap he retired, and watched the others finish.

Mr. Perry, on the Disposal Co.'s S.E.5, went away well but did not finish. Later it was reported that he had been forced to land somewhere between West Thurrock and Bromley. Mr. Stocken's machine seemed very fast and the knowing ones tipped him as a certain winner of the handicap, but quite soon after the start word came in that he had been forced to land with engine trouble at Hounslow.

After Mr. Stocken left there was a wait of ten minutes before Mr. Haig started in the Bristol "Bullet." She was the first machine to give a real impression of speed, and she got off with a very short run. It is of interest to note in connection with certain remarks in this paper about this same machine in last year's Aerial Derby, that she has not been fitted with a spinner and simply has a flat fixed plate behind the airscrew and her speed has increased remarkably. She would have won the handicap with several minutes to spare but for a stroke of bad luck, which will be related in its proper place.

After Mr. Haig there was a wait of fifteen minutes before Mr. James started on the "Bamel." His take-off was as steady and peaceful as if he had been flying an Avro instead of the fastest aeroplane in the World for the present. So peaceful in fact was the machine that she hardly gave one the impression of being as fast as Mr. Haig's Bristol "Bullet." Yet her time shows her still to be the fastest machine in the World, and those who are interested in unofficial performances will be interested to know that her speed down-wind, from Hertford to West Thurrock, worked out at 246 m.p.h.

THE SECOND LAP.

Mr. Hinkler came round on his first lap before Mr. James started, but was so little in front that it was evident that he could not keep his lead. The strong and terribly bumpy wind was pitching the little machine about so that obviously she could not do as good time as the handicappers set her to do, though on a calm day she would have come quite near winning.

Mr. Carter came over, going strong, soon after Mr. James left. Then Mr. Tait-Cox and Mr. Butler gave up on finishing their first lap. And so Mr. Perry and Mr. Stocken being out of it, there were only five in it for the last lap. Mr. James' first lap took 32 minutes, whence it seemed that he must at any rate win the Derby.

THE FINISH.

The first machine to appear when the winner was due home was the Bristol "Bullet." She seemed to be wandering about far to the south of her course and made a big right-hand sweep to the north before turning left-handed to cross the finishing line. While she was doing so the little Bristol monoplane came straight in on a true course, did a sharp left turn over the finishing line and won with 22 1/5 secs. in front of Mr. Haig. One hardly had time to realise what had happened before there was another roar and the "Bamel" came tearing across the line only 5 2/5 secs. behind the "Bullet." It was a wonderful finish.

A long way behind the "Bamel" came plucky Mr. Raynham, the only private owner to finish the race. And last of all came Mr. Hinkler, as pertinacious and undefeatable as ever.

The actual times of the finishers for the 200 miles were :—(1) Mr. Carter, 1hr. 50m. 0 4/5secs. (2) Mr. Haig, 1hr. 21m. 57secs. (3) Mr. James, 1hr. 6m. 48 2/5secs. (4) Mr. Raynham, 1hr. 48h. 12secs. (5) Mr. Hinkler, 2hrs. 35m. 4secs.

Mr. James' time works out at 178 miles per hour, and must certainly be World's Record for 200 miles.

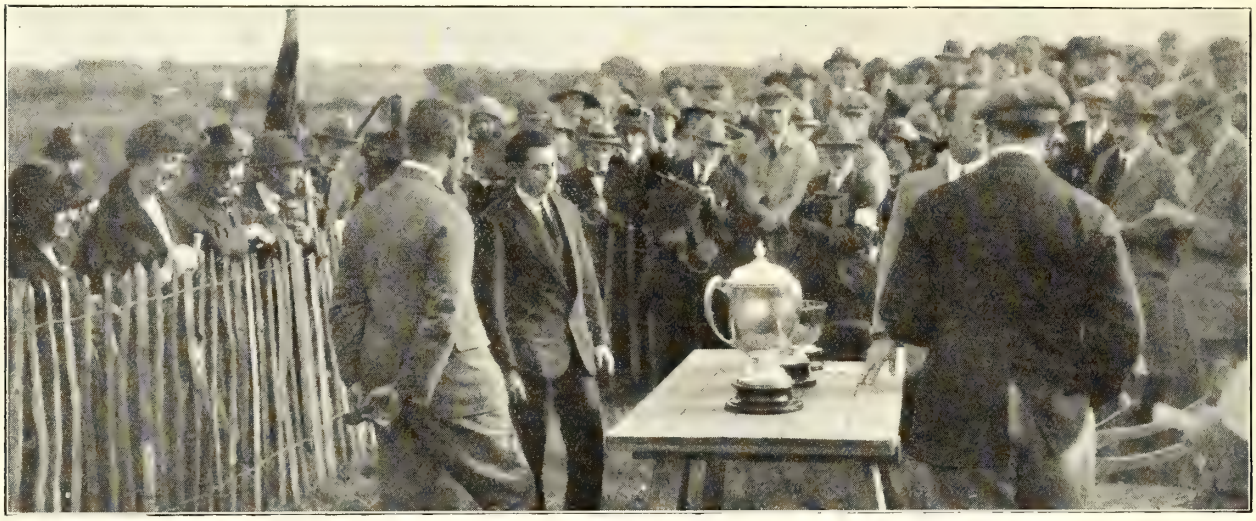
AN EMOTIONING MOMENT.

After the three leading machines had crossed the finishing line came the most exciting moment of the day. Mr. Carter and Mr. Haig landed normally, coming in over the new Brighton Road and running up towards the Bessonneau sheds where the Daimler, Instone and Fokker air-line machines live, in front of which a crowd of people (men, women and children belonging to the aerodrome people and competitors and so forth) were standing or walking about. Then Mr. James came in, perhaps a trifle higher over the Brighton road fence than might have been, and began to put the "Bamel" down. She seemed to kite more than is her custom, and when she touched the ground she ran so far that before one could realise what was happening she was in among the crowd, which scattered and ran like rabbits.

It looked at first as if she were going to charge straight into one of the Bessonneaux, or else into an Instone air-liner that was between her and the sheds. Then, whether owing to the slope of the ground or owing to Mr. James' skill or both, she swung to the right and looked like collecting the Bristol "Bullet." This put her in among the crowd which had dodged out of the way of her straight path. Happily all the people were used to aeroplanes and their vagaries and simply side-stepped her charge like bull-fighters, but Heaven knows what would have happened if it had been an ordinary crowd.

Even as it was things looked ugly for a moment, and deep was the sigh of relief from Messrs. Martin and Longden and Folland of the Gloucestershire Co., when she came to rest with no worse damage than a burst port tyre.

One heard later that Mr. James was feeling somewhat queer and one can well understand it after a gruelling race ending in an incident of this kind. He showed himself a consummate pilot as usual, worthy to rank with the World's best. He is the only pilot to have won two Aerial Derbys And now, one suggests, he ought to go and take a holiday at



THE PRESENTATION.—Major-General Sir Sefton Brancker, Director of Civil Aviation, stymied by Mr. Perrin, about to present the Aerial Derby Cup to Mr. James on whose right may be seen Mr. Haig with Mr. Carter's face attached in profile.

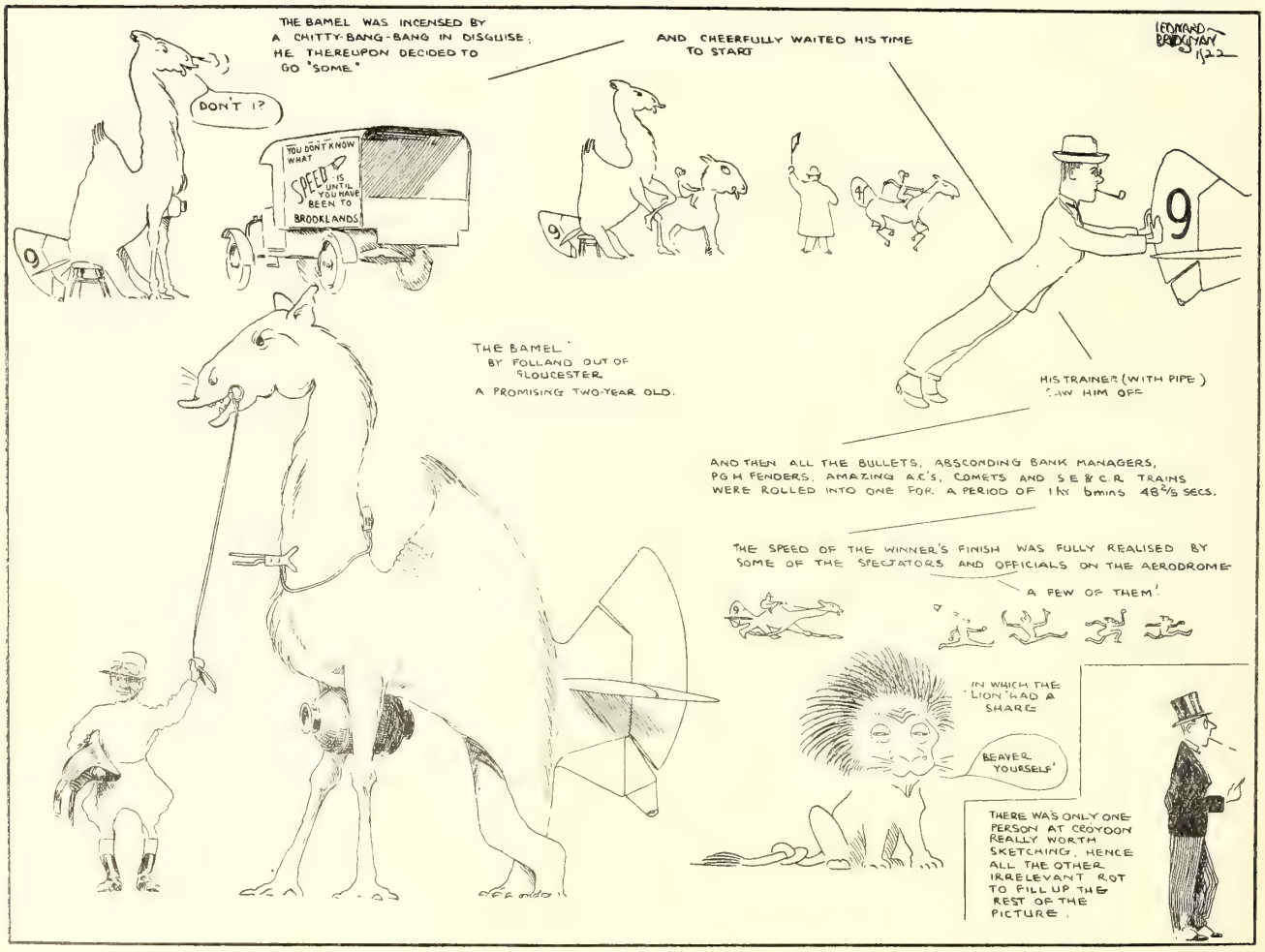
the seaside and get thoroughly fit, so as to bring the Deutsch Cup back to this country. Boxers, athletes and so forth and even jockeys go into strict training for big events and retire to the country with tame doctors and so forth. Piloting these modern projectiles of ours is as big a strain as any competition can possibly be, so one hopes that Mr. James will set to work the right way to win the Deutsch Cup. For we want it badly in this country.

A DIVAGATION.

Mr. Haig's wanderings off the course at the finish deserve to be explained, for as he is a R.A.F. test pilot from Martlesham it was evident that he had not merely lost his way. One learned later that at West Thurrock when turning into the straight for home he noticed that his oil-pressure had disappeared, which indicated either that all his oil was gone or that the oil-gauge had struck work. Then he noticed that the engine was running raggedly and apparently overheating. So he eased down to about 1,000 r.p.m. and cruised gently in a homeward direction.

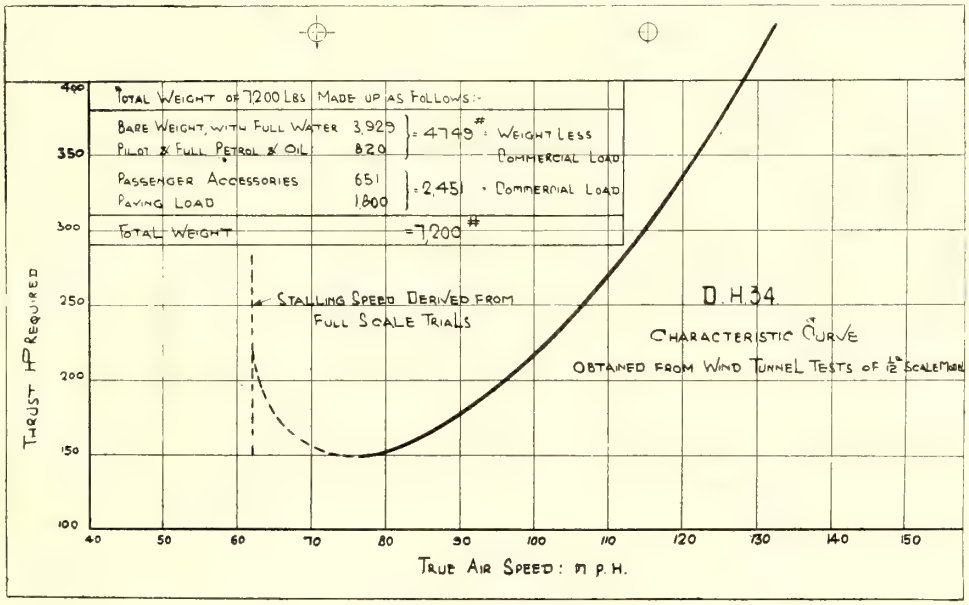
As he neared the finish the course took him over Croydon town, and as he did not fancy a forced landing on the Brighton Road on a Bank Holiday he turned down south so as to be within gliding distance of Sandersted Downs or possibly Kenley. Once across the Purley Valley and finding that the "Jupiter" still held together he opened out a bit and came back onto the course, always within glide of a landing place.

When he landed, in the neatest possible style, it was found that the oil tank was bone dry. Just why was not at the moment discoverable. The engine must have taken more oil than usual, for some unexplained reason. Anyhow it speaks well for the "Jupiter" that it ran from Thurrock to Croydon with only the oil that was in its own inside. And the tactics



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Extract from an article by Major C. C. Turner in "The Observer" of 30.7.22.

"During a flight the other day something went wrong with one of the engine fittings, and the pilot had to turn off the petrol. The journey was continued on the second engine, without discomfort or danger. The present writer, returning to London from Paris a few days ago in one of these machines, had a somewhat similar experience. A trivial mishap occurred to one of the radiators. If it had been a single-engine machine the pilot would have descended rather than risk the Channel crossing. On this occasion, however, it merely meant running that engine slowly; and the journey was continued to Croydon. The feeling of confidence inspired by the knowledge of what can be done in such cases is remarkable; and it reacts beneficially on the pilot, giving greater freedom and thus, indirectly as well as directly, increasing safety."

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of Mr. Haig in guarding against a possible crash show him to be a thinker as well as a very fine pilot. One hopes to see him win a big race ere long.

DESERVED WINNINGS.

Mr. Larry Carter flew a well-judged race and his times show that he kept a very true course. Everybody knew that he is a very clever pilot, but he had never before flown in a big race so as a racing pilot he was an unknown quantity. His win puts his definitely among our best pilots, which means that he is in the front rank of the pilots of the World.

It is so long since the Bristol people had any luck at racing that everybody was delighted to see the pioneer firm taking first and second place in the Handicap. They thoroughly deserved their success, if only for the plucky way they took over the remains of the Cosmos Engine business and thus enabled Mr. Roy Fedden to go on developing the "Jupiter" and "Lucifer" till now they have been proved to be right in the first class of the world's engines, whether air-cooled or water-cooled.

A DIVERTING DISPLAY.

After Mr. James had started on his second lap a very fine display of aerobatics was given by F/Lt. P. W. S. Bulman, M.C., A.F.C., on a "Mars VI," which is in effect a "Night-hawk" slightly modified by Mr. Folland and fitted with a Siddeley "Jaguar" engine. This particular machine was actually built by the Gloucestershire Aircraft Co., and only came out of their works a matter of a few days ago.

It strikes one as a very neat job, beautifully built, as one would expect from a "Gloucester" product, and it is obviously well designed as regards balance and controls. Naturally it does not represent the last word in single-seat fighters, such as Mr. Folland would build in the light of his experience with the "Bamel," but it is a long step in advance of the "Snipe," a machine which has always seemed to one the ugliest and clumsiest aeroplane ever built in this country and quite unworthy of its Sopwith forerunners.

The "Jaguar" is certainly a fine engine, despite that tinny sound which seems inseparable from air-cooled engines. Pilots say it is a very pleasant engine to sit behind and its power is indisputable. In fact, it makes the "Mars VI" all that the "Night-hawk—A.B.C." set out to be and failed to be. Probably a ring exhaust pipe would cure that nasty noise as it cured it on the big Anzanis, and one is certain that it would improve the look and the streamline of the engine. Anyhow, the R.A.F. single-seater squadrons would be mighty glad if their "Snipe" were all burned and replaced by "Mars VIs."

Mr. Bulman did everything that the most skilful pilot could do, and he did it all as neatly as one could wish. Also he did it in the right place, well out on the aerodrome where people could see what he was doing without breaking their necks. After watching him for a while one quite understood why he is an experimental pilot and how he got the two bars to his A.F.C. Such skill as his is only acquired at great personal risk and with the exercise of high intelligence.

Altogether, this flight was quite the most impressive spectacle of the afternoon, and coupled with the "Bamel's" win in the Aerial Derby ought, as the phrase goes, "to send up Gloucester shares." Their machines certainly showed the maximum speed and manœuvrability of the day.

THE REGULATION CRASH.

After the Aerial Derby there should have been a Relay Race for the Air League Challenge Cup (presented by Sir Sefton Brancker and Mr. Philip Foster), now held by R.A.F., Kenley. Uxbridge had challenged the holders and had put in a good team composed of S/Ldr. F. L. Robinson, D.S.O., M.C., D.F.C., and F/Lt. W. H. Longton, D.F.C., A.F.C., as S.E. pilots, and F/O. F. G. Gibbons, D.F.C., for the Avro. Kenley's team were F/Lt. J. M. Robb, D.F.C., and F/Lt. Luxmoore for the S.Es, and F/Lt. R. W. Chappell, M.C., for the Avro.

The two rival S.Es got well away, the Kenley pilot landing a second or two in front of his Uxbridge rival. The Uxbridge Avro (really one of the antiquated Aero Club hacks) refused to move so it looked as if Kenley had the cup for a gift. Mr. Chappell got away with an obviously sulky engine which choked, spluttered and stopped just as he was about 50 ft. up and 100 yds. away from the level crossing.

He might have glided straight on into the open space surrounded by sheds on the other side of the road, but there were two or three machines standing about, including Mr Tait-Cox's "Sprawk," which was being obstinate about starting and was dripping petrol from every cylinder. Mr. Cox seeing the Avro apparently about to ram him came out of his seat like a Jack-in-the-box and bolted for cover. As he said afterwards, everybody missed the best performance of the day, which was himself getting out of the way of the Avro. He said that of he could have kept it up he could easily have beaten the "Bamel."

Meantime Mr. Chappell, seeing the probabilities of a collision, deflected his course to starboard, just cleared the road and hit the top of the far hedge, falling neatly into the field on the other side behind the hut of the keeper of the level crossing. He might with luck have fallen into the the road and have killed a few of the mean sweeps who were stealing free views of the racing instead of paying their shillings like sportsmen, but he managed by excellent skill and judgment to avoid damaging anybody except the poor old Avro. Even she stood it very well and before long Mr. Muir's Mr. Grant will probably have her out again. So all was well that ended well.

Just by way of amusing the crowd S/Ldr. Robinson, of Uxbridge, and Mr. Robb, of Kenley, had a race on the S.Es., which Mr. Robb won. But it did not affect the fate of the Cup, which remains with Kenley "till called for."

A BY-THE-WAY RACE.

After that there was the August Open Handicap. This was won by F/Lt. Longton, on a Disposals S.E.5 (200 h.p. Viper) in 8 mins. 25.2/5 secs. for the 16 miles (including five hairpin corners). Mr. Robb on "the bad S.E."—otherwise the less speedy sister of Mr. Longton's machine—was second in 8 mins. 37.3/5 secs. Mr. Butler on his new D.H.37 was third in 9 mins. 23 secs. Possibly his speed is higher than the figures indicate, for he flew high and took one or two corners a trifle wide.

Capt. Stocken on the "Tinsyde" F.4 with the groggy engine—who ought to have won the race on half throttle—was fourth and last in 10 mins. 26 secs. Presumably he was working at his engine and did not notice where he was going, for instead of turning sharp at Purley Downs he fell right off the map and disappeared towards Brighton, only reappearing after some minutes and giving the others a present of half a lap. The performance was not at all that of the pilot who beat the French cracks on the Paris—Brussels—London—Paris Circuit a few weeks ago.

Mr. Longton certainly had the better machine, but his win was due quite as much to his beautiful piloting as to excess of speed. He certainly has a masterly hand in an aeroplane.

THE MAKERS OF SUCCESS.

Towards the end of the afternoon Sir Sefton Brancker, Director of Civil Aviation, presented the prizes for the Aerial Derby and the Handicap to Messrs. James, Carter and Haig. It is wonderful how General Brancker "multiplies himself," as the French say. He is in Brussels one day, Cologne another, Paris probably the same day, addressing a meeting in the North one day, presenting prizes and acting as Steward of the Royal Aero Club at Croydon another, and in his capacity as Steward being everywhere at once. Civil Aviation badly needed energising before General Brancker took it on, and if energy can make a success of Civil Aviation it certainly will be made successful.

Incidentally one would like to see an energy competition between Sir Sefton and Colonel Darby of the Disposal Co., who was Clerk of the Course. The finish would be about as close as that of the Derby Handicap. Furthermore, as the result of that handicap Mr. Goodman Crouch, one of the handicappers, seemed quite pleased with life, for a change, and Colonel Bristow, the other handicapper, seemed more then ever disposed to bless the world. Colonel Blandy, Controller of Communications at the Air Ministry, was duly judicial as Judge. And the gate, though not up to the pre-war standards of Messrs. Richard Gates and Bernard Isaac, was quite good enough to give an expression of perfect peace to the Club Secretary, Mr. Harold Perrin, and his Aide, Mr. Stevenson.

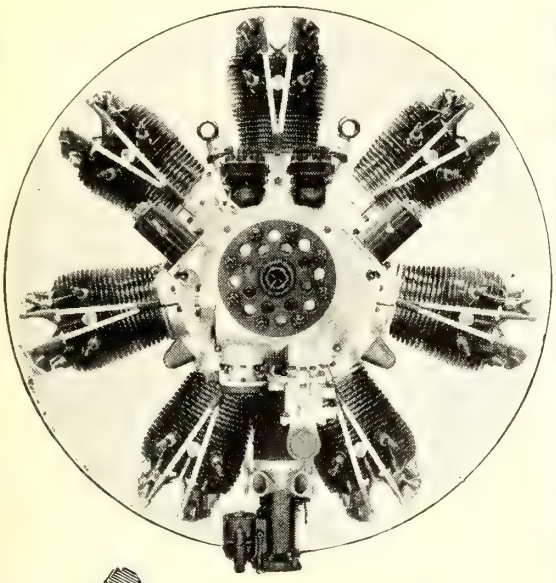
Taking it all round it was a thoroughly cheery show, despite G.D.'s lament that he did not see why Aero Club Meetings should be rationed to one crash per meeting. Perhaps next time somebody who wants to draw insurance money will lend G.D. an aeroplane and let him see what he can do towards a Brighter Croydon. Finally all the officials of the London Terminal Aerodrome entered thoroughly into the sporting spirit of the day and helped everybody to the fullest extent. So what more could one ask for an afternoon's sport?—C. G. G.

"IF JIMMIE WINS."

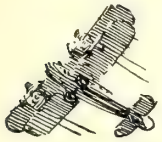
". If Jimmie wins
"Can Haig be far behind?"

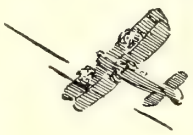
(A novel account of the race as Mr. Hutchinson might have written it.)

"James James, age very young, pilot, been to India, can fly, won aerial Derby. Rum chap Jimmie. Came from Wales. Ran across a chap who met him the other day. Said do you remember Jimmie, rum chap Jimmie. Tied up with Bamel now. Interchange the 'M' and 'B' and you get 'Mabel.' Dashed funny isn't it? You know some time ago Jimmie flew an old love of his called 'Toshhawk' for the Air-Bart to France for a race. Curious chap the



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Air-Bart. Jimmie kept landing all the way out to find out where he was. Everywhere he landed, he put in a peg which he cut from various derelict machines on the air route. Rum chap Jimmie. When he was coming home he noticed that all the pegs had been painted like curly snakes. Came the time he arrived home and he went to thank the Air-Bart for so kindly showing his interest in aviation by painting the pegs. The Air-Bart replied that though he was still greatly interested in air he didn't paint the pegs. Rum people, Air-Barts.

[This has nothing to do with the story, but in best sellers you always put in a lot of irrevelent stuff for padding. Rum things best sellers.]

Came into Jimmie's life Bamel. Also Bamel's father called Harry Folland. Mr. Folland came to Jimmie the first night that the latter met Bamel, and said "Here is your Mars I." Jimmie could not bear the word Mars I or Mars-in-law. There were several words, such as Guinness, Haig and Haig, Bols and Bollinger, that Jimmie could not bear and Mars I was one of them. Mr. Folland also got a hat for Jimmie to wear. Now Jimmie hates hats, and when Mr. Folland said 'You never wear a hat?' Jimmy answered 'No, I never was.' Rum chap Jimmie.

Jimmie found Bamel very fast. She kept going faster. He did not know how fast she would go in the end, but he thought very fast.

There was a bookmaker at Croydon called Tom who was very tall, and he had an assistant who was very short. When Jimmie saw them he at once said "Ah Long Tom and Short Tom." He rolled Bamel three time with laughter at the joke. '"Long and Short' I will call them in the future,"' he said. Rum chap Jimmie.

.

[500 pages, much in the same style and taking one no further in the story, are here omitted.]

.

When Jimmie finished the great race with Bamel it was seen that he was quickest. Quick chap Jimmie. But he did not like the crowd that had come to see him. He did not care. His eyes were full of dust and he charged along the ground with black hatred in his heart. How could they be so cruel. Then something seemed to snap in his brain. They were all round him, the brutes. But why? No. He swung Bamel round and was out of them. What did it matter. He had won. Rum chap Jimmie.—G D.

COMMERCIAL AERONAUTICS.

Notes of the Week.

Capt. Stocken has been testing numerous machines for the Aircraft Disposal Company this week.

On Wednesday afternoon, during one of the hardest rain-storms there has been for some time, Capt. Stocken took out a "Tinsyde" for test, looped it, and also made some very pretty slow rolls. At the same time Mr. Larry Carter, with Mr. Ponsonby as the wireless operator, came in from Paris in a W8b. The rain was so terrific that Capt. Stocken's air-screw looked as though he had "lent it to a dog" (as someone once described a Shell bruyère pipe).

The Instone Air Line have got Major Greer in sole charge of their interests at the aerodrome. They have now got a new D.H.34, G-EBBW, and so have four 34s in all. The "Vimy" is out again and flying successfully.

After one's notes last week on the subject of all the Vulcans being in working order again, one turned onto its nose at Brussels when taking off, another damaged a wing-tip at St. Inglevert, and the third was returned to Brooklands for alteration. That one has now been received back, and the other should be ready by now.

The Daimler Airway have taken delivery of G-EBBU and now have their complete stock of 34s. Every day and in every way they seem to be getting more and more passengers.

Mr. Muir is getting a large number of passengers for his five-shilling joy-rides, and has a very useful persuader in the person of Mr. C. D. Chamberlain, who seems to be able to convert even the most air-scared.

On Tuesday Mr. Muir took two passengers to Ostend on the new Avro G-EBDP.—G. D.

An Important Civil Change.

It is announced that Major S. T. L. Greer, A.F.C., has been appointed General Manager of the Instone Air Line Ltd. Major Greer was until recently in charge of Croydon Aerodrome for the Air Ministry and was chiefly responsible for the organisation of the Air Terminus.

Since leaving the Royal Air Force in 1918 he has been closely connected with Civil Aviation in all its branches, and was among the first to be employed in Commercial Flying at the Air Ministry.

Some time ago he was made Brussels manager for the I.A.L. One congratulates the Instone Air Line very heartily on their acquisition and also one wishes Major Greer the best of luck in his new position.

Capt. MacMillan's Progress.

Capt. Norman Macmillan arrived at Ambala from Lahore at 19.00 hours on July 31st. On August 2nd, according to a Reuter cablegram from Simla, the party was held up at Ambala owing to engine trouble. According to the *Daily News* they had been held up at Ambala for four days owing to engine trouble. The first day they renewed the rubber petrol connections. The second day they tried to start, but after half an hour's flying,, had to return. On the third day they drained and flushed all the tanks and pipes as pieces of rubber from the old connections were blocking the carburetter On the fourth day they took off again, but had to return when half way to Delhi, the same trouble recurring.

It was reported from Delhi on August 5th that the machine arrived on the outskirts of Delhi at 13.30 hours on the 4th. Capt. Macmillan had to make a forced landing three miles from the Aerodrome owing to engine trouble and rough weather. A further communication stated that owing to heavy rainfall and flood the temporary hangar at Allahabad was flooded.

The *Daily News* of August 5th, referring to the forced landing outside Delhi, said that Capt. Macmillan made a good landing in a soft ploughed field, but it was obvious that he could not get out of it again. The trouble was traced to choked filters, and after cleaning them the engine ran well. In the meantime a guard was provided by the Leicestershire Regt.

Capt. Macmillan decided that the only way he could take off would be from the road, a mile and a half away. Col.-Commandant Clive Wigram and Mr. Rouse, of the Public Works Department, turned out about 1,500 Indians to cut down trees and fill in ditches so that the machine could be moved. It was also found necessary to lay a chain of railway sleepers. By the time the machine was onto the road it was dark and heavy rain was falling. Mr. Rouse and the Leicesters put the party up for the night and in the morning the machine was moved along the road to the starting point. Capt. Macmillan then took the machine off alone and landed at the Delhi Aerodrome.

Capt. Macmillan and his passengers arrived at Agra from Delhi at 15.28 hours on August 5th. The engine was again giving trouble and it was reported on Saturday, August 5th, that the party were trying to get a new machine.

An attempt to fly to Allahabad was made on the 7th, but the engine beginning to fail they landed again at Agra. Here it was found that the fabric was stripped and the wood of the propeller chipped.

The *Daily News* reported on August 8th that the Maharajah of Baharatur (presumably meant for Bharatpur) has lent them a new engine and propeller. It is not known how his coloured Highness happens to possess such things.

[The usual Commercial Aviation features are held over owing to the Aerial Derby.—Ed.]

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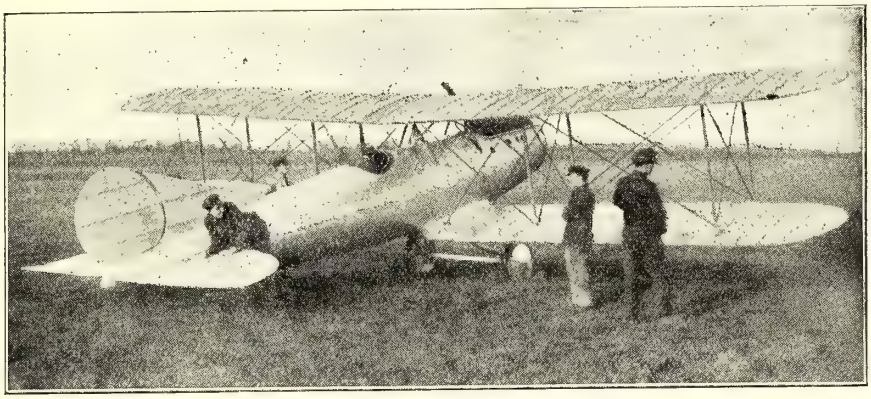
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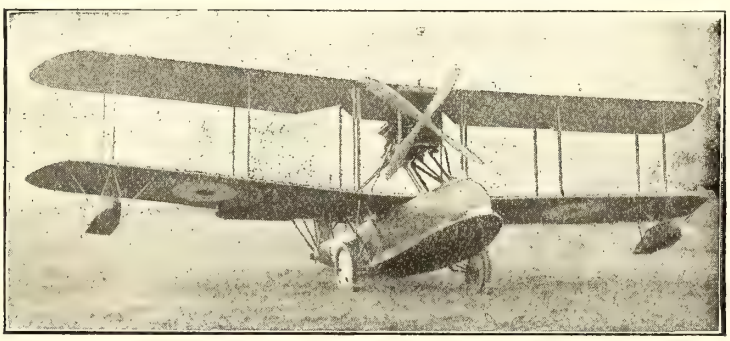
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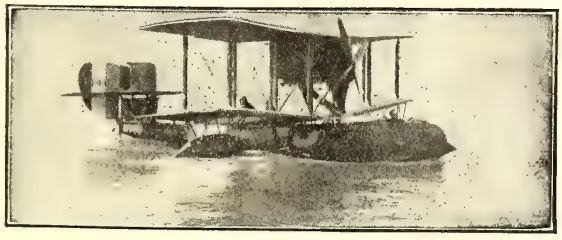
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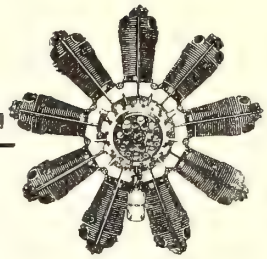
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Edited by C. G. Grey

WEDNESDAY, AUG. 16, 1922.

Vol. XXIII. No. 7. SIXPENCE WEEKLY. [Registered at the G.P.O. as a Newspaper.]

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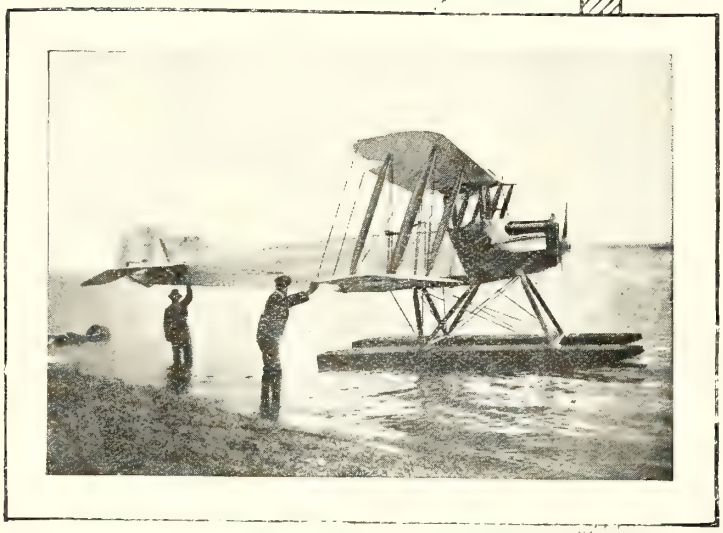
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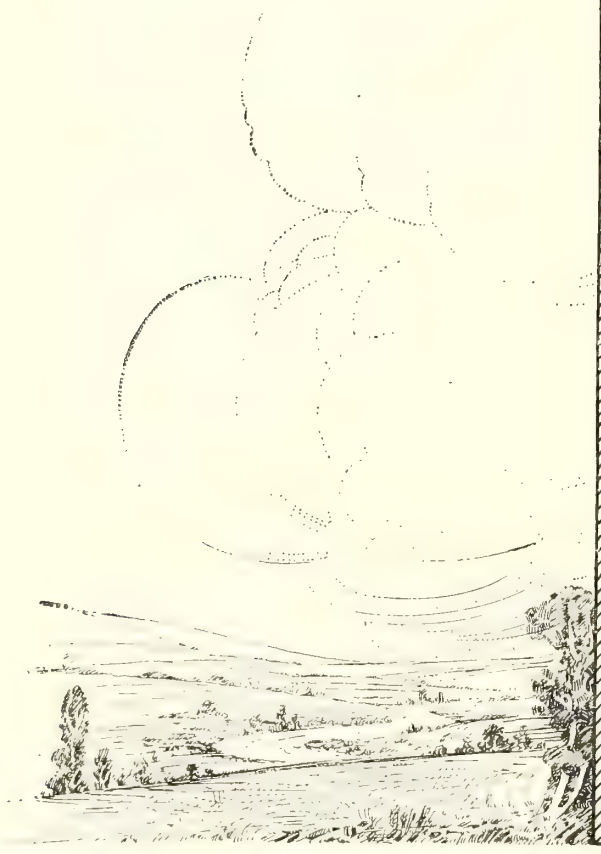
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ON THE HISTORY OF THE FLYING SERVICES.

Many men can write good books but few can write good history. Many great men and many great causes have suffered in the esteem of posterity because of bad historians. The King's Flying Services are happy in that the official history of their foundation and formation and of their early work in their first war has been written by one who was not only a great writer but a great historian. The late Sir Walter Raleigh in the first volume* of the vast work which he has left unfinished has created a precedent and set a standard which may make things difficult for his successor but does at any rate assure that the rest of the history must either reach a very high level or not come into being at all.

The title, "The War in the Air," is the only bad thing about the book, conjuring up as it does visions of popular histories issued in parts at sixpence weekly or the like, or of incompetent accounts in striking covers compiled by half-baked journalists with variegated pseudonyms. But one may assume that the title was chosen by the War Cabinet or some other unliterary Authority and not by the great man whose impartial judgment and charm of style has produced a history worthy of our new First Line of Defence.

The Author on His Work.

In his preface, Sir Walter says :—"The History . . . is based chiefly on the records of the Air Ministry collected and preserved at the Historical Section. The staff of the Section have spared no trouble to collect an immense amount of material and arrange it for use, to consult living witnesses, to verify facts down to the minutest details, and to correct any errors that may have crept into the narrative. Their main purpose has been to secure that any statement of fact made in this book shall be true and demonstrable. If in any particular instances they have failed in this purpose it has not been for lack of pains and care. Official records do not in themselves make history. They are colourless and bare. In the business of interpreting and supplementing them we have been much helped by the kindness of many military and naval officers and of many civilian experts. Their help, most of which is acknowledged in the text, has supplied us with the liveliest things in this book. We could wish we had more of it."

Further he says :—"The writer of this history has endeavoured to make his narrative intelligible to those who, like himself, are outsiders, and, with that end in view, he has avoided, as far as possible, the masonic dialect of the Services. For the few and cautious opinions he has expressed he alone is responsible. In controverted questions, though he has not always been careful to conceal his own opinion, he has always tried so to state the grounds for other opinions that those who hold these other opinions may think his statement not unfair. If his own opinion is wrong, the corrective will usually be found near at hand. The position of an outsider has grave disabilities; if a measure of compensation is anywhere to be found, it must be sought in freedom from the heat of partisan zeal and from the narrowness of corporate loyalty."

There you have the best possible summing up of the way in which the History has been written. Sir Walter had the advantage of an industrious and intelligent staff, all with intimate knowledge of the Flying Services and of the men who made those Services. His own fascinating personality secured the best work of which that staff was capable. And the facts which they collected and compiled were either edited or re-written by Sir Walter himself so that the book has become one homogeneous whole which is so far as it has gone not only a history which is true and accurate almost beyond human hopes but a book which is a joy to read and a pattern for all who desire to write English as it should be written.

Baptism by Immersion.

In describing himself as an outsider Sir Walter allows his modesty to do him an injustice. How long he was interested in aviation one has no idea, but from the moment when he first came into contact with the Flying Services he so immersed himself in them that all we who have been concerned with flying since its beginning are proud to count him as one of us. How he acquired the true Air Force touch is told in a little memoir compiled by a member of his staff, Mr. H. A. Jones, who says : "He went to France at a time when the victorious Allied Armies were driving the Germans back towards the Rhine. He spent a great part of his time at the R.A.F. Headquarters, but also visited many squadrons and was taken over the numerous parks which ministered to the wants of the Service. He flew about the Ypres Salient and other parts of the line. The story is told of him that while staying with one squadron he was already dressed in flying kit and on the point of starting as a passenger on a night bombing raid. He was stopped in time. I do not know whether the story is wholly true, but certainly he wrote home, 'I had the opportunity of going in a Handley Page on a night bombing raid, but had not the General's permission, and as the pleasure would have been mine and the responsibility for any mishap would probably have fallen on the pilot, I felt bound to refuse.'"

Methods of Work.

His method of working is also well described in the same memoir, where it is said :—"He brought his manuscript to the office and the staff sat round him while he read it. He was very sensitive. He felt himself an amateur in the midst of a body of experts. It must have been a new experience for him to come and submit his work to a tribunal of ordinary people like ourselves. As he read on he warmed to his work. He forgot us. We forgot him. His fine voice held us. We were taken, as it were, over the world on the wings of the wind. The whole meaning of air warfare was made plain to us. We were looking down, now on this battlefield, now on that, and the whole vast organisation was seen clear cut as through a diminishing glass.

"There were criticisms in the Press against the conduct of some of the members of the Service. Sir Walter was impatient of these criticisms. 'Critics who speak of what they have not felt and do not know have sometimes blamed the Air Service because, being young, it has not the decorum of age. The Latin poet said that it is decorous to die for one's country. In that decorum the Service is perfectly instructed.' That is the spirit of his book."

Sir Walter's Way.

Sir Walter's own style was so pure and his sense of humour so keen that one must perforce quote another passage from his staff's memoir :—"A pamphlet (a very able one) was sent to him, mostly dealing with the supply of munitions. 'I wonder,' he wrote, 'in what language does the Munitions Man write to his wife? I shall set him to my classes to translate, *e.g.*, 'The output of light bombs was greatly in excess of that of the heavier natures'='The bombs made were mostly light bombs.' When he says 'in the case of bombs' he doesn't mean the case. When he says evolve, factors, evaluate and the like he doesn't mean anything much. Public office English is a bloody jargon.' And again, 'Lord Haldane in a letter to me says the Wrights were *empirics*. I suppose he means they merely did it.'"

Yet again, "He could not learn where he was not interested. It was no use talking to him about 'coherers' and 'microhenries.' His only comment would be that 'microhenries' were far better called 'harries' for short."

And, "Here is an obituary (so to say) of Maitland. It does not half express my admiration. He was as quiet as a Quaker and as considerate as a hospital nurse. I wonder if he ever knew fear. It sounds extravagant, but I don't think so—not even in the R.38."—Those who knew Ned

* THE WAR IN THE AIR, VOL. I., by the late Sir Walter Raleigh. Oxford, The Clarendon Press (489 + XIX. pp.) 21/- nett.

Maitland will agree that no such truth has ever been spoken of one of the best men God ever made.

As to the Preface, already quoted, Sir Walter wrote, "The Preface, I think, will be very brief and will try to avoid the sin of prefaces, which mostly speak with the voice of a hen when she has laid an egg."

Finally in sending his last corrected proofs to his staff he said, "Some authors seem to expect fame. I shall be satisfied with forgiveness." Sir Walter already had fame of the best kind. Among the minority who matter he was recognised as one of the great literary men of our age. The History will not increase his fame it will only make it known to many who might otherwise remain ignorant. The average officer of the R.A.F. does not suffer from any excess of education. It may be assumed that all officers and most other ranks of the R.A.F. will read their own History and thus will acquire knowledge of a man who might have remained unknown to them. When they have done so their feeling to him will not be one of forgiveness but of reverence and the deepest gratitude.

Our Great Loss.

Sir Walter died as the result of his thirst for yet more knowledge of the Service which he had made so peculiarly his own. He contracted fever while in Mesopotamia with the R.A.F. It will be difficult for his successor to become so entirely one with the R.A.F. as he was. It seems that the rest of the History must be edited by one who is actually outside aviation, even if it be compiled by the staff who have so fully imbibed Sir Walter's traditions. One man who could do it adequately is the Honourable John Fortescue, but he is too fully occupied with his great History of the British Army to spare time for any other Service. Another who might do it is an officer who though never in the R.A.F. knows more about the Flying Services and Aviation and War than any but a few of those who flew throughout the war—but he is never likely to be asked. Therefore one awaits with curiosity the appointment of Sir Walter's successor.

The Introduction Extraordinary.

The book begins with an Introduction which in itself is a pure joy. The kindly cynicism with which the author quotes those sentimentally bluggy lines of Tennyson's about "the nations' airy navies grappling in the central blue" and "the Parliament of man, the Federation of the World" give one that queer tickly feeling which comes half way between a smile and an outright laugh. And he continues, "The Germans, who as a people fall easy victims to agreeable sentiment, indulged extravagant hopes from the war in the air and expected great achievements from their Zeppelins. On the other hand, the English, who are less excitable, were comparatively slow as a nation to appreciate the importance of the new invention. Conservative and humorous minds are always conscious of the immutable and stable elements in human life and do not readily pay respect to novelty." Which is the point in psychology which most people miss.

He points out that "the progress of aerial science followed what, in this country, is the normal course. We have had many great poets and many great inventors. We sometimes starve our poets but we make classics of their works. We sometimes leave our inventors to struggle unaided with their difficulties, but when they succeed we adopt their inventions as part of the national inheritance, and pay to their names a respect greater than bounty-fed dependence can ever command or deserve. Their failures are their own, their successes belong to their country."

There you have, put in that gently humorous way which makes the book so fascinating, one of the elemental truths which explains not only why England is the greatest nation in the world but why England's credit is to-day stronger than that of any other nation and why England is still the best country in the world in which to live. To put the whole thing into modern slang, We don't go off at half cock and we don't fly off the handle. The salvation and safety of England lie in our sense of humour and our sane stupidity.

The Gospel of the R.A.F.

Turning to the Flying Services themselves Sir Walter says:—"No history can be expected to furnish a full record of all the acts of prowess that were performed in the air during the long course of the war. Many of the best of them can never be known; the Victoria Cross has surely been earned over and over again by pilots and observers who went east, and lie in unvisited graves. . . . The officers in command have always been unwilling to pay regard to 'star turns'; what they have coveted for the Service is not a low range of achievements rising now and again into sharp fantastic peaks, but a high tableland of duty and efficiency. They obtained their desire, in a result more surprising than any single exploit can be. They made courage and devotion the rule, not the exception. . . . To exact the highest standard of conduct under this strain, not as an ideal to be aimed at, but as a working rule, might well seem to be winding up human nature to a point where it must break. The commanders of the air service did not hesitate to take the risk. . . . The experience of the war revealed, to a generation that had almost forgotten them, the ancient and majestic powers of man, the power of his mind over his body, the power of his duty over his mind."

In that passage you have in condensed form everything that was best in the old Royal Naval Air Service and Royal Flying Corps whose great traditions now live in the Royal Air Force. And lest those who are concerned in the air service should become unduly exalted, Sir Walter adds words of wisdom for their benefit. "The men who march often admire and extol the courage of the men who fly, and they are right; but the men who fly, unless they are very thoughtless, know that the heaviest burden of war, its squalor and its tediousness, is borne on the devoted shoulders of the infantryman. All other arms, even ships of war themselves, in many of their uses, are subservient to the infantry. . . . Battles can be won in the air or on the sea, and the mark of victory is this, that the patient infantry, military and civil, can then advance, to organise peace. It would be an ill service to the men of the Air Force, and a foolish ambition, to try to raise them in consideration above the men whose servants and helpers they are."

In the last words of the Introduction Sir Walter referring to the individual member of the R.A.F. says:—"He is now in the workshop where tradition is made, to be handed down as an heirloom to the coming generations. It will not fail to reach them. The Royal Air Force is strong in the kind of virtue that propagates itself and attains to a life beyond a life. The tradition is safe." Those are great words and should help and comfort the weaker brethren who are disheartened by attacks in Parliament and the Press made by people of jealous Senior Services and by people formerly of the Air Force who because they were inefficient now find themselves in a position to vent their personal spite against the big men who have made the Air Force what it is, a Service of the King worthy to be our First Line of Defence.

The Opening of the History.

It would be easy to fill many issues of this paper with quotations from and comments on the purely historical work in this great book. Everywhere one finds Sir Walter's quiet humour and keen philosophy. But space in these hard times is scarce and one can only give a brief outline of the general scheme of the History.

The first chapter is devoted to "The Conquest of the Air" and the second to "Aeroplane and Airship," beginning with the almost legendary attempts with gliders and balloons and carrying on by way of Otto Lilienthal and Percy Pilcher, the first actual controllers of a heavier-than-air craft, to the early work of Langley, the Wrights, Curtiss, Blériot, Delagrange, the Voisins, Ferber, the Farmans, Latham, and their British contemporaries A. V. Roe, Cody, Moore-Brabazon, Rolls, Cockburn, Weiss, Ogilvie, Dunne, and McClean, and to the early days of real flying, when Howard Wright, Handley Page, Sopwith, Short and the Bristol Co. became the names of business firms making machines which flew, which latter stage occupies the third chapter, "Flight in England."

Here also is found the story of the early days of flying by the Navy at Eastchurch, by the Army on Salisbury Plain, and by civilians at Brooklands and Hendon. It is wonderful history for it is difficult to recall the name of anybody who actually did anything for aviation in those early days who does not appear in those pages. The only notable omissions are those of Mr. Howard Flanders and Mr. R. F. Macfie from the Brooklands paragraphs. Both did valuable work and Mr. Flanders was one of those heroes "the possessors of comfortable incomes, who lived for years on thirty or forty shillings a week and spent the rest on their aeroplanes." Also Mr. Raynham did not rent a shed in those days, he was a slight, delicate-looking youth working for one Neal.

The fourth chapter brings us to "The Beginnings of the Air Force," by way of military balloons and Captain Fulton's famous "No. 2 Aeroplane Company, The Air Battalion R.E.," and the formation of the Aircraft Factory at Farnborough. Sir Walter's tactful explanation of the differences between the "Factory" and the "Trade" is a marvel of skating on thin ice. This chapter also contains the early history of our airships, from the "Nulli Secundus" (which was not) and the "Mayfly" (which did not) onwards. And a handsome tribute is paid to that brave and able Gunner, Captain Bertram Dickson, who was *the* pioneer of military flying in that he was the first to fly in co-operation with the Army.

The Royal Flying Corps in Being.

Chapter V. records the formation of "The Royal Flying Corps," with its Naval and Military Wings. It is interesting to read the names of those who were prominent in its early days, to see how many have, after long years, proved to be the incompetents that their contemporaries knew them to be even then and to see how few have justified the faith that was put in them. But perhaps the most wonderful thing is to see how many are still alive and actually flying and how few have been killed while flying. This ought to defeat those whose cry it is that the R.A.F. provides no career for a young man.

The account of the organisation of those days is particularly clear. The history of the introduction of wireless in aeroplanes is excellent, the work of those two splendid officers, Donald Lewis and B. T. James (both killed in action), being duly recognised. The whole history of the days from 1912 to the outbreak of war is told with wonderful clearness, both the Army and the Navy sides get their full share of attention.

Chapter VI. deals with "The War: The Royal Flying Corps from Mons to Ypres." The genesis of the war itself is briefly and clearly set forth. Then follows the story of the crossing to France of the historic "First Four Squadrons"—Nos. 2, 3, 4 and 5, and the misunderstood "Aircraft Park." Very rightly the names of all the officers of this little force are recorded, and it is of intense interest to note how their subsequent careers have varied. Some of the names are unknown even to those who knew the R.F.C. well in those days. The operations of the opposing armies are shown for all to understand. The individual adventures of those early aviators make amazing and amusing reading. Every officer of the R.A.F. should make a close study of this chapter for he will find in it many minute details of experiences which may later in his career save him endless trouble in working out ideas which has already been tried and found wanting.

The Beginning of the R.N.A.S.

Chapter VII. is devoted to "The Royal Naval Air Service in 1914." Here we have the R.N.A.S.—which had only owned its title for a month when the chapter opens—handled as ably as is the R.F.C. in the preceding chapter. Due credit is given to the work of the two workable airships of the period, and an excellent map of their patrols is published. Also the horrors of those early seaplane patrols is somewhat disclosed. The exploits of the R.N.A.S. free-booters in Flanders are excellently told, one has never had a better account even verbally from those who were in their affairs. Afterwards we come to the famous bomb raids on Düsseldorf and Cologne. Altogether the gallant work done by Wing-Commander Samson's little band makes a joyous story. Then comes the famous Friedrichshafen raid and the equally educative seaplane raid on Cuxhaven, neither of which taught anything to our incompetent Naval authorities. For some curious reason no mention is made of Commander Cecil l'Estrange Malone, who initiated and commanded this latter raid and organised the little flotilla of Channel steamers converted into seaplane-carriers with which it was made. One can only imagine that his name was never allowed to reach Sir Walter. Whatever Commander Malone's political opinions may have been since then, he did some splendid work in the war and is entitled to his place in the History. His omission is the more peculiar in that full credit is given for the Friedrichshafen raid to Mr. Pemberton Billing, who at one time was far worse hated by those in authority than ever Commander Malone has been.

The Chief Appears.

Chapter VIII. concerns "The Expansion of the Air Force." Here for the first time we come across the man who made our Air Power. Sir Walter says:—"The command of the Military Wing at Farnborough was given to Major Hugh Montague Trenchard, and the Royal Flying Corps had found its destined Chief. The power which Nature made his own, and which attends him like his shadow, is the power given him by his singleness of purpose and his faith in the men whom he commands. . . . His intuitive understanding of the men who served under him, his quickness in learning the lessons of experience, and his resourcefulness and daring in immediately applying these lessons for the bettering of the Flying Corps have been worth many brigades to this country." Those were the days when Major Trenchard was left at Farnborough with a row of empty sheds, a typewriter, a couple of N.C.O. clerks and two or three officers incapable of active service to build a Flying Corps, and how he did it is told as only Sir Walter could tell it.

There are in this chapter some very good stories of "K," otherwise Lord Kitchener of Khartoum, and some of the reminiscences supplied by General Brancker make excellent reading. Also there is much useful information by Group Captain Hearson concerning the training methods of the period. And the organisation of the R.F.C. into Corps squadrons, Army squadrons and so forth is made clear in print for the first time. There is also an account of the liaison work in Paris which was supposed to get supplies for us.

The Mishandling of Naval Aviation.

Then comes the handling, or mis-handling, of Naval Aviation. Sir Walter lets the Navy down as lightly as possible, but there is no concealing the obtuseness of the Naval mind. A curious omission is the lack of mention of the work of E. T. Willows and Mr. Holt Thomas in producing the "Blimp," which is ascribed entirely to a Naval origin, whereas the Willows' machine was the first of the kind, and it originated with Lord Fisher and not at the Royal Aircraft Factory. Adequate credit is, however, given to the late John Porte in the history of the flying-boat, and to the late Lieut. Hyde-Thomson for originating the torpedo-seaplane.

Later we come to the production of fighting machines for which due credit is given to the firms concerned. And thence naturally we find how the fighting squadrons of the R.N.A.S., Nos. 3 and 8, despised by the Navy, saved the lives of the over-standardised R.F.C.

The Unfinished End.

And so we come regretfully to the end of the book, though still merely at the beginning of the war. One has merely given readers the briefest glimpse at the contents of the book, but one hopes that it is enough to induce them to read it. Not only is it fascinating reading as such, but it is in great part a text-book of Service Aviation.

The worst thing about it, barring the title, is the lack of an index. This spoils it as a work of reference, for which purpose it would be most valuable. One suggests that if and when the second volume appears it should contain an index for the first two volumes. Readers will not wish to wait till the next war for the index to be published with the last volume.

Sir Walter's staff are to be congratulated on their part in his work. One hopes that they will have a new chief who if he can never rival their old chief in their affection may at any rate earn their respect and cordial co-operation. They have learned their work under the best possible master. It is to be hoped that all of them will be allowed to continue it and that they will not be "economised" out of existence. There are many officials in technical sub-sections at the Air Ministry whose absence would save their salaries a hundred times over by preventing the waste which they cause. Perhaps some of them might be allowed to go so that the good work of compiling the History of the Flying Services may be carried to a happy ending.—C. G. G.

THE VISCOUNT NORTHCLIFFE.

Alfred Harmsworth, Viscount Northcliffe, died on Monday, Aug. 14th, after an illness which, though its symptoms have been observable for some years, only became acute a few weeks before his death. As he concerned himself fitfully with aeronautics it is necessary to refer to the event in this paper.

Judged by common standards of wealth and influence Alfred Harmsworth was a great man. Judged by any standards he was great within certain narrow limitations. That is to say, only a great man could have built up the business which he built, and could have used it as he did to acquire influence. But, given his wealth, his influence, his ability, his power, it is only possible to regard as pathetic his failure to do the good which he might have done if he had been blessed with a great mind as well as great ability. For Alfred Harmsworth meant well.

His connection with aviation illustrates his defects as well as his qualities. He saw that flying had to become the transport of the future and he proceeded to boom it according to his lights. He first offered a prize of £1,000 for the first mile flown over a closed circuit by an all-British aeroplane. The idea was good. It encouraged British aviation. The prize was won by Mr. Moore-Brabazon on a Short biplane, with a Green engine. Thereafter he put up big prizes for the first flight from London to Manchester, for a race round Britain, and for a flight across the Atlantic, each worth many thousands of pounds. Each in succession was boomed in the typical Harmsworth style and each boom was followed by a

slump, represented by a period during which he and his papers neglected aviation.

At the time of the Circuit of Britain one pointed out to one of his underlings how much more good could have been done to British Aviation if the money offered had been put up for a number of smaller prizes for the best performances by British aeroplanes during a certain stated period in certain defined districts. The reply was that such a competition would not suit "the Chief," whose idea it was always to have a big boom, and get it over before the Public got tired of it. And the underling added that such a progressive competition as one suggested would not advertise Lord Northcliffe's papers so well as the Round Britain race would do. Similarly the money offered for the trans-Atlantic flight might easily have produced far greater results than it did both by encouraging progress in design and by educating the public.

The net result of all Lord Northcliffe's attempts to boom aviation has been that the Public has been taught to regard flying as a stunt or a spectacle rather than as a young and progressing method of transport. This attitude has been confirmed by his permitting his papers to "feature" every aeroplane accident as an "air tragedy," or something similarly sensational, when he might have done flying a real service by ordering that aeroplane accidents were merely to be treated like any form of street, road, or rail accident as an incident of locomotion.

The reason for his failure to help the progress of aviation and for his failures in so many other things which he attempted is to be found in a telling phrase in *The Morning Post*,—"He saw the limitless opportunity for a journalism which should not be a popular educator, but a popular entertainer." Instead of trying to educate his public to an understanding of aviation he was content to entertain the mob by promoting aviation spectacles or by describing in lurid colours the tragedies of aviation, though perhaps after all the people got the papers they deserved.

Herein lay the moral defect of his character which prevented him from being a truly great man. He was incapable of realising that the British Public will enjoy the best of everything or the worst, but will not be entertained by the merely clever. As an illustration of one's meaning one would point out that at any ordinary band performance, say in a public park or at a seaside concert ball, the audience will applaud enthusiastically the best Wagnerian music or the latest syncopated sentimental song, but they will not be bothered with anything in between; or the public will read with equal avidity the work of Rudyard Kipling or "If Winter Comes," whereas a merely clever book will have a very limited sale.

Lord Northcliffe naturally chose to give his public syncopated journalism because he himself was incapable of appreciating what was truly great. It never occurred to him that it would have been possible to achieve far greater success with a newspaper staffed from top to bottom by educated gentlemen, combining the humour and fun of *Punch* with the literary journalistic standard of *The Spectator* and *The Morning Post*. If he had realised that fact he would have been much more dangerous than he was, or rather, if he had realised it, he would have been a sufficiently great man to have done real good to everything he touched. As things have worked out, the net result is that the printed word is less regarded as a standard of truth than it was before Alfred Harmsworth ventured into journalism.

Yet, as one has said, he meant well. One has had many talks with him on aviation and one has always been impressed with his anxiety to help. Others who have come in contact with him on political affairs have been equally struck by his anxiety to act for the best interests of this country. Yet he always fell short of his aims. It has been said that Lord Northcliffe was the greatest living journalist because he had a greater faculty for grasping the whole of a subject in a given time than anybody else. It is true that he had such a faculty, but personally one has never met a man who could so successfully grasp a whole subject and at the same time miss the essentials of it.

So far as our own little subject of aeronautics is concerned it is difficult to judge whether he has done it harm or good. At any rate it is certain that he meant to do it good, so let that stand to his credit. Similarly in the great affairs of the World it is equally difficult to judge whether the existence of Lord Northcliffe has been for the benefit of humanity or to its detriment. He brightened journalism even if in certain ways he debased it. He created a new public for the newspapers by, as a humorist said years ago, starting papers for people who could not think. Some of those people are now beginning to think and it remains to be seen whether men of greater intellect than he will give those people the education which Lord Northcliffe failed to give them. If so, then the work he did in creating this new public will turn the balance in his favour.—C. G. G.

THE SCHNEIDER CUP VICTORY.

The race for the Schneider Cup, held at Naples on August 12th, was duly won by Mr. H. C. Biard, on the Supermarine "Sea Lion, Mk. II." (450 h.p. Napier "Lion"), who covered the course of 200 nautical miles in 1 hr. 34 mins. 57 3-5 secs., or a speed of 126.6 knots (145 m.p.h.).

The three Italian representatives, on Savoia and Macchi boats, alone competed in the race itself. The two French competitors, on C.A.M.S. (Chantiers Aero-Maritime de la Seine) machines both failed in the preliminary seaworthiness tests. It is said that they sank at their moorings. The second in the race was Passaleva (on a Savoia), in 1 hr. 36 mins. 54 3-5 secs., with Zanetti (1 hr. 44 mins. 7 secs.), and Gorgolino (1 hr. 51 mins. 27 secs.) third and fourth respectively.

The very sporting effort made by the Supermarine and Napier firms is thus deservedly crowned with success, and the only international trophy ever held by Britain returns to this country, after having left it in a very unsatisfactory manner.

The performance of the "Sea Lion" is a very extraordinary one. Speeds of the order of 145 m.p.h. have before this been claimed for flying boats, but an average of 145 m.p.h on a closed circuit of this length must mean a maximum speed of at least 160 m.p.h., a figure which will undoubtedly astonish many of those who believe the seaplane to be necessarily a slow type. As a matter of fact it is a remarkable speed, and its achievement reflects every credit upon the designers, the engine-makers, and the pilot.—W. H. S.

The pilot, Mr. Henry Charles Biard, holds Royal Aero Club Certificate No. 218, granted on June 4th, 1912. He was at the time a pupil at the Grahame-White School, and the machine on which he took his ticket was a Howard-Wright biplane which must have been built some time early in 1911. It is of considerable interest to note that among the certificates granted on the same day for tests made on the same machine were those of Lieut. T. O'B. Hubbard, the late Richard T. Gates, the late Lieut. B. T. James, R.E. (the pioneer of wireless in the R.F.C.), and Mr. Marcus Manton. It is most peculiar that so many famous aviators should have taken their tickets at the same time on the same machine, and that Mr. Biard, hitherto absolutely unknown to the general public, despite the the fact he was an R.N.A.S. pilot and displayed great ability throughout the War, should have achieved international fame more than ten years after taking his ticket.

The very greatest credit is due to Mr. Hubert Scott-Paine, the very moving spirit of the Supermarine Aviation Works. From the days when he as a mere youth participated in the most hair-raising maritime adventures in the Mediterranean and Atlantic and Channel, with Mr. Pemberton-Billing (including the famous cutting-out expedition which abstracted a unit of the German Reserve Fleet from the Harbour of Monaco) up to the present time when he is managing director of one of our most important seaplane firms Hubert Scott-Paine has always been a sportsman. He has taken big risks and he has come through by sheer force of character, driving power and quickness of intellect. He now has the credit of being the first British aircraft constructor since the War to vindicate the honour of British sport in aviation. Not since Mr. Sopwith made it possible for Mr. Howard Pixton to win the Schneider Cup at Monaco in 1914 has a British aeroplane won a big international contest. It is to be hoped that this win may be a happy augury for the British machines in the Deutsch Cup race next month.

The credit for this win, however, must certainly be shared with Mr. H. T. Vane of the Napier Company, who in the same thoroughly sporting spirit put up a Napier engine for the race. The Napier Company, thanks to Mr. Vane and, one believes, thanks also to Mr. Montagu Napier himself, have always been keen on supporting the sporting side of aviation, realising that the winning of big events in the air is just as important as winning big races used to be in motoring.

Firms which win these big events, whether in the air or on the road or on the water, do far more than advertise their own products; they demonstrate that British products are still able to hold their own against the world. Ever since the Armistice, when the Royal Air Force ceased to demonstrate that British pilots and British aeroplanes and British engines were the best in the world, the reputation of British aircraft has been steadily decreasing.

It is true that all-British machines flew from London to Australia and from London to the Cape and from Newfoundland to Ireland, but the man on the Continent regarded these performances rather as proofs of British solidity and reliability than as demonstrations of British ability to turn

(*Continued on page 134.*)

ROLLS-ROYCE

AERO ENGINES

THE FUTURE OF FLYING DEPENDS ON RELIABILITY

Some Proofs of Rolls-Royce Reliability:

ACROSS THE ATLANTIC *(without a stop)* 1,890 miles.

ENGLAND TO AUSTRALIA —11,500 miles.

ENGLAND TO SOUTH AFRICA—6,281 miles.

ENGLAND TO SWEDEN *(and back)*—2,450 miles.

ACROSS THE SOUTH ATLANTIC—3,822 miles.

ENGLAND TO CONSTANTINOPLE—2,160 miles.

ENGLAND TO FINLAND—1,100 miles.

ENGLAND TO WARSAW—1,050 miles.

"The first **International Air Reliability Trial** ever held has just been completed at Brussels, and has been **won by a Handley-Page** machine fitted with two **Rolls-Royce engines** The machine scored 100 per cent. marks for take off, speed, climb and weight carrying."
Evening News, 30/6/22.

Rolls-Royce Aero Engines are in regular use on these Air-Mail Routes:

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LONDON	—	BRUSSELS
CAIRO	—	BAGHDAD
MOSCOW	—	KÖNIGSBERG
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CONSISTENT HIGH-GRADE QUALITY.

The absolute purity, high-grade quality, and dependability of Pratt's Aviation Spirit are so well recognised by Air-Travel Companies that 80 per cent. of the Aviation Spirit used at the Waddon Aerodrome is Pratt's.

Three of Anglo's Golden Pumps (Approved by the Standards Dept. of the Board of Trade) are now installed at Waddon Aerodrome for the rapid supply of Pratt's Filtered Aviation Spirit.

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BRANCHES AND DEPOTS EVERYWHERE.

AERONAUTICAL ENGINEERING

SUPPLEMENT TO "THE AEROPLANE"

INCORPORATING AIRCRAFT ENGINEERING AERODYNAMICS, AIRCRAFT FINANCE AND COMMERCIAL AERONAUTICS AND MATTERS PERTAINING TO THE AERONAUTICAL ENGINEER AND THE AIRCRAFT TRADER.

THE WEEKLY COMMENTARY.

The Aveline Automatic Pilot, which is described in this issue, is an exceedingly interesting and ingenious appliance designed to relieve the pilot of the strain, both mental and physical, which is involved in a long period of manually controlled flight.

Where really big machines are concerned the reduction of the purely physical strain is a matter of great importance—some large flying boats in particular, even to-day, call for more muscular effort in flying than one can reasonably expect a man to exert for any long period.

The most interesting and the most valuable feature of this apparatus is the very ingenious combination of gravity and air speed control of the sensitive element, which makes the apparatus a real automatic pilot, and allows the maintenance of steady and true flight on any desired course independent of the pilot's mental activity and manual dexterity.

A brief announcement of a proposed flight round the world, to be made by a British crew on a British seaplane, will be found on page . With no very great faith in the general utility of round-the-world flights at the present moment, one may at least welcome the fact that a seaplane is to be given a chance of demonstrating its ability for really long distance work and that a thoroughly competent crew are undertaking the task. No better combination than that arranged for the projected flight can be imagined.

THE AVELINE AUTOMATIC PILOT.

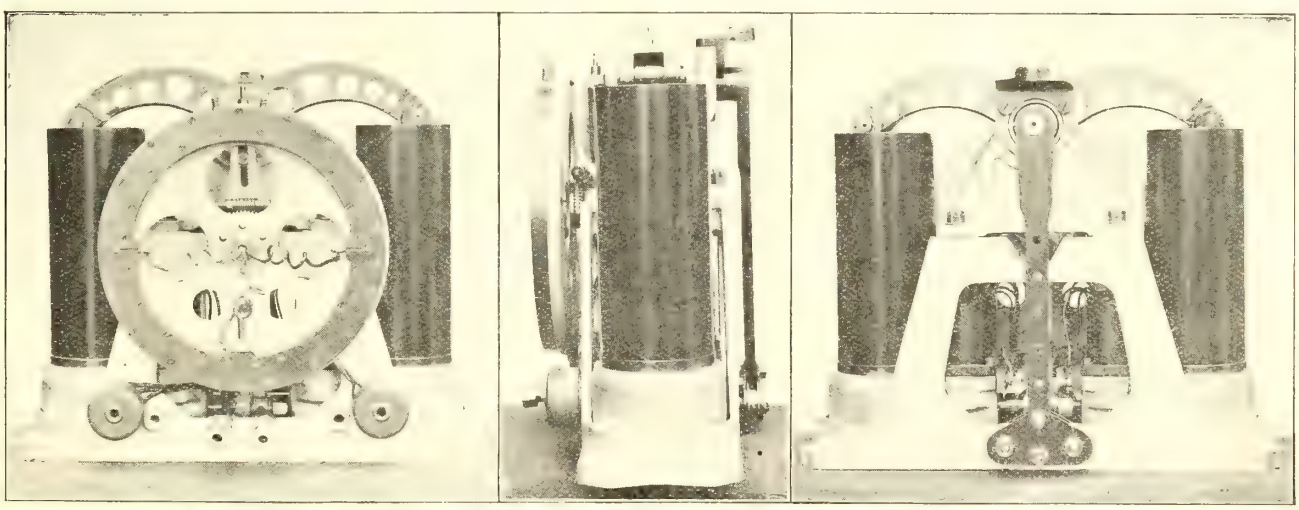
In the years before the war there was great controversy between the advocates of "inherent" stability and those of stabilisation by mechanical appliances actuating the control surfaces of the aeroplane. That controversy has ceased to exist—it is very generally recognised nowadays that a reasonable degree of inherent stability is a desirable and an easily provided attribute of any ordinary aeroplane.

At the same time it does not appear to be possible to make a machine so stable as to be proof against faulty handling by the pilot—except possibly by so limiting the controllability as to make the necessary manœuvres of landing and taking off unsafe.

Also because inherent stability secures only a tendency to maintain steady movement relative to the air, it cannot serve to maintain a machine in steady movement relative to the earth in air which is itself in unsteady movement. And as aerial navigation has as its end movement relative to the earth, the pilot of a stable machine still has plenty to do to maintain a steady course on a reasonably level keel. In bad weather and on a heavy machine, he may have so much to do as to be exhausted by a relatively short flight. It is therefore generally recognised that automatic devices intended to maintain an aeroplane in steady flight without the intervention of the pilot would have great practical value.

The Aveline Automatic Pilot is such a device. It consists essentially of two independent units, which operate the longitudinal and the lateral controls of the machine to which it is fitted. The rudder is left entirely to the pilot. The longitudinal and the lateral control units are mechanically identical, and consist each of a compressed air power unit, operating the controls, and controlled in its turn by a special form of mercury level and a system of electrical circuits and relays.

The scheme of this power unit is shown in a diagram. It consists of two pistons, A_1 and A_2, working in appropriate cylinders, coupled together to a rack B. This rack engages with a toothed sector C, pivoted at D, which is coupled directly to the control cables. The power pistons are operated by compressed air controlled by electro magnetically operated inlet and exhaust valves I_1, I_2, and E_1, E_2. The sensitive element which controls the whole of the operations is a mercury level shown at F. This consists of a circular groove, worked between two fibre plates, very nearly half filled with mercury, and fitted with contacts, H, at the bottom



Front, side and rear view of the latest type of Aveline Control Unit.

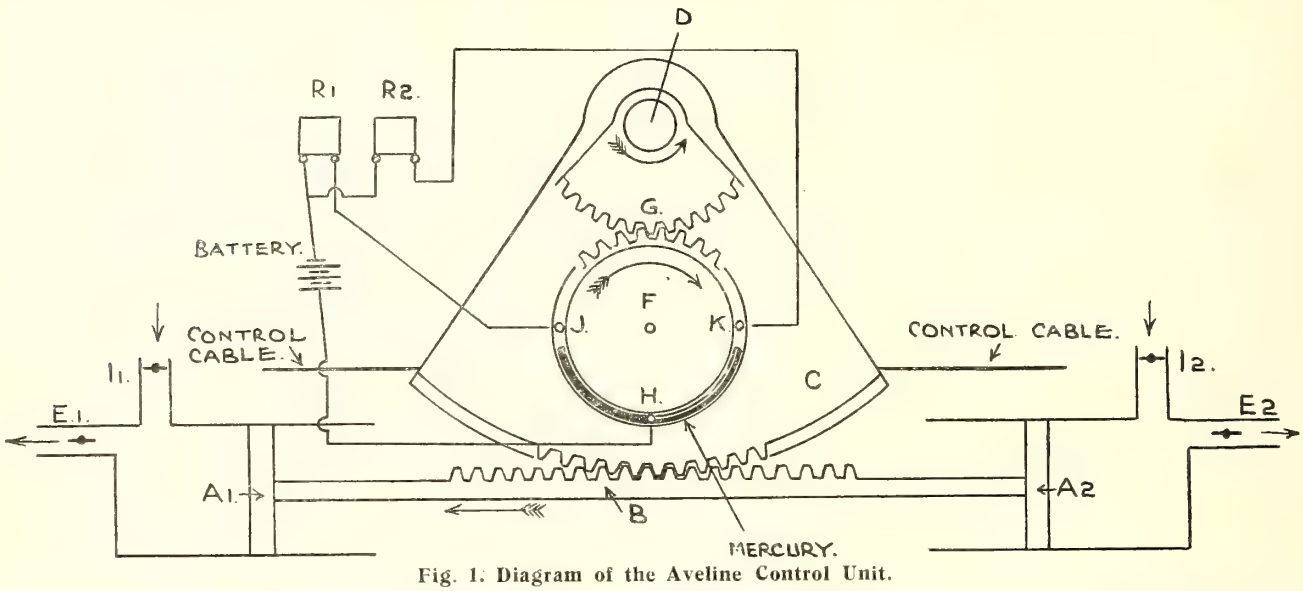


Fig. 1. Diagram of the Aveline Control Unit.

of the groove and always in contact with the mercury, and J and K each slightly above the normally horizontal diameter of the ring and so normally out of contact with that mercury.

If this level be inclined, say downwards to the right, contact K will touch the mercury, and an electrical circuit through the battery, the relay R_2 and contacts H and K will be closed. By means of other circuits (not here shown) the inlet valve I_2 and the exhaust valve E_2 will both be opened. The pistons then move to the left. If the apparatus is fixed in a machine transversely and the control cables are coupled directly to the ailerons, it can be seen that the right aileron will be pulled down, and thus will tend to restore the machine to a level keel.

But, if the level was fixed to the machine, the contact at K would be established immediately a heel began, and would be continued until the machine returned to a level keel. The pistons would move out to the limit of their travel and would remain there until the machine was level. The machine would swing past level, the opposite circuit would be closed, and the result would be violent flapping of the ailerons and violent hunting of the machine. What is required is gradually increasing movement of the aileron as the heel increases, followed by gradual return to the normal as the machine reaches a level keel.

To secure this the level casing itself is pivoted at its centre F, and is geared, at G, to a toothed sector which moves with the main sector C. When the sector C and the control cables attached to it move to the left, the level casing rotates to the right (counter-clockwise) and the contact K is kept just touching the mercury for so long as the machine continues to heel to the right. For so long the valve I_2 remains open and the right aileron is pulled down. As soon as the heel stops and righting begins, the contact (J) on the other side comes into contact with the mercury, and air pressure is admitted to behind the piston A_1. This tends to restore the pistons and consequently the ailerons to normal. The level case with its contacts rotates with the piston movement in the reverse direction, always just keeping contact at J, and finally when the machine returns to a level keel the ailerons are just centralised.

Actually a little hunting probably occurs, the contacts making and breaking alternately on each side, but the general effect is that while the heel of the machine is increasing, the ailerons continue to move to counteract the heel, and while the machine is recovering from the heel, the ailerons are gradually restored to the central position.

It will be seen that a precisely similar mechanism can be used to operate the elevator controls, the only change necessary being the placing of the power unit so that the level is fore and aft instead of transverse. The apparatus then tends to keep the machine on a level keel. But one does not always wish to keep a machine at the same attitude. It may be necessary to climb, or to descend as well as to fly level, and one may wish to fly level at varying speeds. This need is simply attained by giving the level case an independent adjustment.

Actually the level is adjustable relatively to the geared frame at G by a worm gear, so that its zero level may be adjusted by the pilot in flight to give any desired trim. Connection to this adjustment is provided by a flexible shaft generally similar to those used for revolution counters, leading to a small crank handle fitted in the pilot's cockpit. Naturally this adjustment is not used on the lateral control unit—except for final adjustment of the level after fixing the apparatus to the machine.

So far it will be seen that the appliance is controlled by an ordinary type of level, and as is well known such a level will not give the true horizontal except in steady flight. If it were solely as described the apparatus would lead to disaster under certain conditions. For instance, consider the result on longitudinal controls if the engine suddenly stops. The machine will lose speed, the mercury in the level will, in virtue of its inertia, move forward, and the level will alter precisely as if the nose of the machine had dropped. The result will obviously be to pull up the elevator in an attempt to restore the machine to the false level given by the mercury. This will cause a further drop in speed, and increase the forward movement of the mercury. The result will be to stall the machine rapidly. This difficulty is overcome in a very ingenious manner.

The circular channel containing the mercury is divided at the top by an air tight partition (Fig. 2). On each side of this partition a union is provided for the attachment of an air pipe. For the elevator control unit the after union is open to the atmosphere, and the forward one is coupled to a Venturi tube mounted on the machine in a fore and aft line. So long as the machine is in motion the fore end

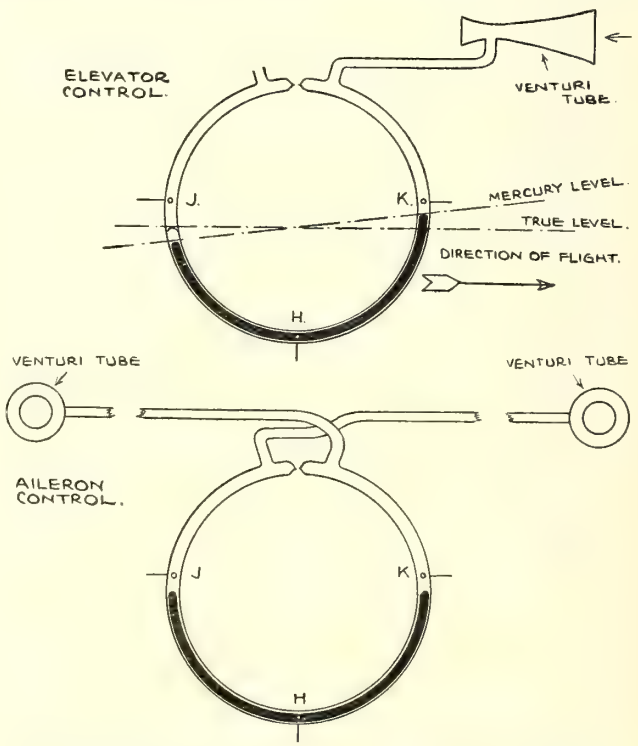


Fig. 2. Scheme of the Venturi tube connection to the mercury level for longitudinal and lateral controls.

VICKERS LIMITED

Brief Specification:
"Viking" Mark IV.
6 Passengers and Baggage, or 1,360 lbs. Freight.
RANGE: 340 miles. SPAN: 50 ft. HEIGHT: 15 ft. 1 in. LENGTH: 35 ft.

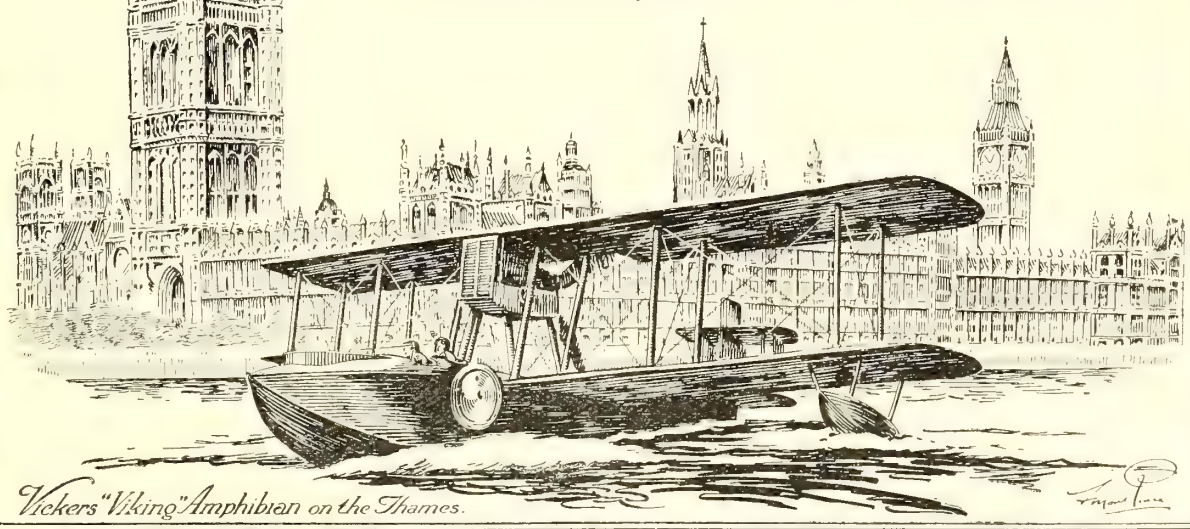
The Vickers "Viking" was the winner of the FIRST prize of £10,000 for the Amphibian Class of Aircraft entered for the BRITISH AIR MINISTRY COMPETITION, September, 1920.

The Vickers "Viking" was classified FIRST in the following competitions at the INTERNATIONAL SEAPLANE COMPETITIONS at ANTWERP, July, 1920.
1. Shortest time in "unsticking" from water. 2. Fastest time over a given circuit.
3. Climb to 1,000 metres. 4. Altitude with full load.

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Vickers "Viking" Amphibian on the Thames.

of the level is under suction from the Venturi, and so is held out of level by this suction. The amount of suction varies with the air speed, and the drop in this suction, due to the drop in speed caused by engine failure, is sufficient to overcome the inertia effect on the mercury, which in fact moves backward instead of forwards, and so causes the elevator to be pulled down, and puts the machine into a glide. The control is thus a combined gravity and air speed one, and it can easily be seen that the gravity control will tend to predominate in the case of sudden changes of attitude, and the air speed control will prevent any large change of air speed.

The case of the lateral controls is somewhat similar. As is well known, the ordinary level in a turn shows an apparent horizontal which is actually inclined at the correct angle of bank for the particular turn. It follows that if the pilot by the use of the rudder causes the machine to turn the mercury level will take up the angle of correct bank, and will take the machine up to that angle and keep it there.

But there is a difficulty here. In the average machine there is no definite radius of turn corresponding to a definite rudder angle. That is, machines are not directionally stable in the same sense as they are longitudinally stable.

If a machine is put onto a true turn it may require reversed rudder to keep the radius of turn from growing shorter. The gravity aileron control in that case will merely secure that the bank increases as the turn grows sharper. There is no tendency whatever directly due to the control which will tend to take the machine off the bank and restore it to straight line flight if the pilot centralises the rudder. The machine itself may, or may not, have such a tendency, but the purely gravity controlled level will have no effect on that tendency. It will merely secure a true bank for the turn at all times.

And particularly for fog or cloud flying a control which was neutral in this respect would be of little value. A tendency to restore the machine to straight and level flight is necessary.

To provide this, two Venturi tubes, one at each wing tip, are provided. The cross level is provided with the top partition and the two unions just as is the fore and aft level, and the two Venturi tubes are coupled to these unions, the pipes being crossed—that is the port Venturi is coupled to the starboard side of the level.

In straight flight the suction on the two sides will be equal, and the cross level is solely gravity controlled. In a turn, the outer and upper wing is moving at a higher speed than the inner lower wing. The suction on the outer Venturi is therefore greater, and from the crossing of the tubes tends to force the mercury back towards the true level instead of allowing it to take up freely the true angle of bank .

It would appear that this must secure that the bank actually taken is always slightly less than the correct one, but it also means that there is provided a tendency to pull the machine back to a level keel, which is precisely what is needed.

The complete equipment requires, in addition to the control units whose action has been described, a windmill driven air compressor, and an air storage tank, together with the necessary supply of electrical energy for operating the relays and the valve magnets.

The control cables from the power units are coupled up to those leading to the ordinary control column, which will move under the action of the automatic control and so indicate to the pilot what is happening. The pilot can, however, take over the control himself at any time. He may do this by opening a switch in the circuit controlling the valves for the power cylinder and by shutting off the air supply to the power units. The pilot then has control, but will also have to move the pistons and other mechanism of the power unit. The occurrence of a jamb in the power unit mechanism would, however, jamb his controls, and therefore the cables connecting the power unit to the actual controls are each looped round a pair of pulleys, one of each of these pulleys being carried on a quick release gear. By releasing these pulleys the loop in the coupling cable is left slack, and the normal controls are free to operate in virtue of this slack.

It has already been mentioned that the circuits through the mercury levels control small relays which in their turn control the air valves to the relays. In addition these circuits control small indicator lamps which light up as the corresponding relays are energised. So long as the machine flies true, no lamps are alight. Heeling or pitching lights up the appropriate lamp, and thus an indication of the machine's altitude is given. These indicator lamps can be used even when the automatic control is put out of action by cutting out the valve operating gear.

The apparatus has been given very extensive tests on a number of machines. It has been proved to work exceedingly well in practice. Major Brackley in particular has tried it out on a Handley Page O/400. On a trip to Paris under very bad weather conditions he allowed the Aveline control to take charge for undisturbed periods of up to 1¼ hours, and found it to be satisfactory in every way.

The arrangement has also been tried by the R.A.F. and by the French Section Technique, and it is understood to have been so satisfactory that considerable orders are now on hand.

A photograph here reproduced shows the control unit in its latest form. The disposition of the cylinders in a vertical position makes a more compact arrangement than that shown in the diagram, but there is no change in the principle of operation.

ROUND THE WORLD IN A SEAPLANE.

Particulars of a projected flight round the world by seaplane, which is to be attempted next year, have just been made public. The scheme, which is drawn up under the auspices of the Air League of the British Empire, provides for a flight from England *via* Bordeaux, Athens, Basrah, Bombay, Rangoon, Hong-Kong, Tokio, the Aleutian Isles, Vancouver, across Canada and the United States to Newfoundland, and back to England by the Azores.

The machine is to be a specially built Fairey, presumably amphibian, fitted with a Rolls-Royce "Condor" engine of 650 h.p., and it will be piloted by Capt. E. S. K. McLoughry, D.S.O., D.F.C., and Capt. R. H. McIntosh, with Capt. F. Tymms, M.C., as navigator. A mechanic is also to be carried.

The purposes of the flight are stated by the Air League to be :—(1) The addition of a fresh record to those already held by British machines and personnel; (2) demonstration of the value of the seaplane for long distance flights under varied conditions; (3) demonstration of engine reliability; and (4) the collection of meteorological data.

The Air Ministry has expressed its approval of the objects of the flight and of the general scheme and has promised to lend such aid as is in its power to secure the success of the attempt.

The choice of a Fairey seaplane is, in view of the firm's experience with the "Lusitania," which put up so fine a performance on the South Atlantic flight, highly judicious. The personnel for the expedition has also been well chosen. Capt. R. H. McIntosh is the well-known Handley Page pilot, and his ability to handle large and heavily loaded machines may be taken as being unequalled.

Capt. McLoughry served with distinction in the Australian Flying Corps during the war, is accounted to be a first class pilot, and is certainly one of a stout heart.

Capt. Tymms, after service in the Infantry, transferred to the R.F.C., became an artillery observation expert, and has since specialised in aerial navigation. He acted as navigator to the Handley Page machine which crashed in the attempt on the England to the Cape flight in 1920, and is at present in the Navigation Department of the Air Ministry. He is one of the very few holders of the Air Ministry Air Navigation certificate of the highest grade.



A PROJECTED GIANT SEAPLANE.—Photograph of the wind tunnel model of a four-engined 60-seater seaplane projected by a German designer at present unnamed, but suspected to be Dr. Junkers. Passengers and goods are to be carried in the twin boats. The navigating personnel are housed in a cabin in the wing between the hulls. The four engines housed in the wings are to be of the opposed cylinder heavy oil type of about 750 h.p. each. The overall span will be about 60 metres.

More B.T.H. Magneto Successes for 1922!

On August 7th, for the second time in succession, B.T.H. Magnetos helped Mr. J. H. James to secure the Aerial Derby Trophy for First Place.

His machine—"Mars 1," the Gloucestershire Aircraft Company's biplane popularly known as the "Bamel"—has a 450 h.p. Napier Lion engine, equipped with a **B.T.H. A.V.12 Magneto** and this year averaged 179½ m.p.h., being 16 m.p.h. better than last year.

Second Place was gained by Mr. R. A. de H. Haig, flying a Bristol Bullet machine, equipped with a 440 h.p. Bristol Jupiter engine and a **B.T.H. A.V.9 Magneto.**

Third Place was secured by Mr. F. P. Raynham, in a Martinsyde F.6 machine, equipped with a 200 h.p. Wolseley Viper engine and a **B.T.H. A.V.8 Magneto.**

B.T.H. Magnetos were also fitted to the machines gaining **Second, Third, and Fourth places** in the **1922 Aerial Derby Handicap,** and to the machines gaining **First, Second, and Third places** in the **August Open Handicap,**

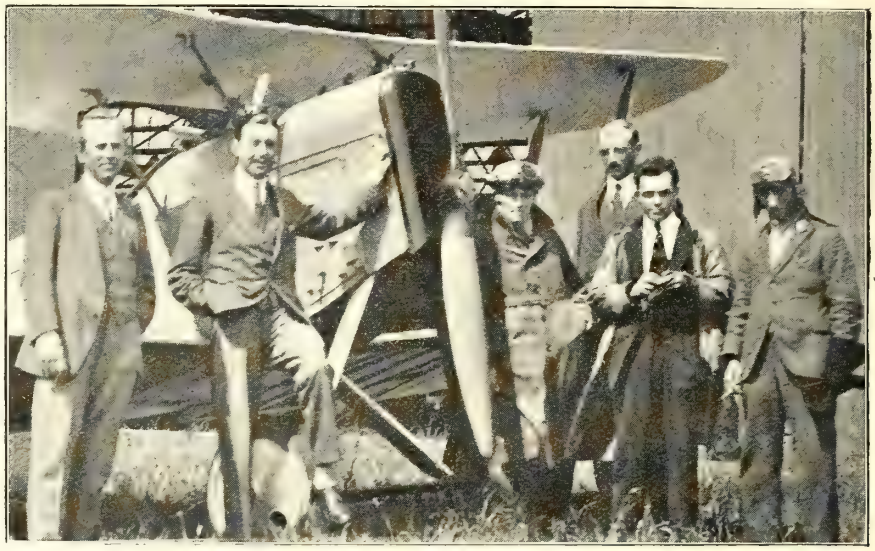
This is the fourth successive Aerial Derby in which B.T.H. Magnetos have been fitted to machines gaining the First and Second places.

The British Thomson-Houston Co., Ltd.,

Lower Ford Street, :: :: :: :: Coventry.

B T-H

LONDON-TO-MOSCOW. — The first flight ever made from London to Moscow was accomplished recently by a Russian aviator named Gwaiter (evidently not of Russian descent) on a "Baby" Avro with a 35 h.p. Green Engine. Much difficulty was met in crossing Germany, where a Russian subject on a British machine caused international complications. In the group (taken at Hamble) are seen, from left to right, Mr. A. V. Roe, Mr. Roy Chadwick (designer), the pilot Gwaiter, Mr. Bert Hinkler (chief pilot and tester for A. V. Roe and Co.), and another Russian named Zerekidze; behind Mr. Hinkler is Capt. Ellerton, late of the A.I.D.



AN IMPORTANT MOVE.

It is announced that the Gloucestershire Aircraft Co., Ltd., Sunningend Works, Cheltenham, has taken over the sole rights of the Nieuport "Night-hawk," a single-seater fighting machine, originally produced by the Nieuport and General Aircraft Co., Ltd., the moving spirit of which is the Lord Waring, formerly well known as Sir Samuel Waring, Bart., who is understood to have obtained his baronetcy in connection with aviation.

The Nieuport "Night-hawk" was designed by Mr. H. P. Folland, F.R.Ae.S., M.B.E., M.I.Ae.E., who first made his name as the designer of the S.E. biplanes at the Royal Aircraft Factory during the War, and has since become famous as the designer of the Napier-engined Mars I more familiarly known as the "Bamel," which was his first work as chief engineer and designer for the Gloucestershire Aircraft Co., Ltd.

It is not very clear what precisely constitutes taking over the sole rights of the "Night-hawk" as, obviously, Mr. Folland could design a better machine for the same purpose to-day than he could when he designed the "Night-hawk" something over four years ago. One presumes that it has something to do with the use of the name which at one time was well advertised as being that of the fastest single-seater fighter in the World, and it would seem also to have something to do with making the Gloucestershire Company the "parent" firm when the reconditioning of "Night-hawks" is under consideration, and when modifications are being made in the existing stock of "Night-hawks" in order to fit them to take Siddeley "Jaguars" or Bristol "Jupiters."

In any case, one may safely assume that the name "Night-hawk" will become far more widely known under the ægis of the Gloucestershire Co. than it has been hitherto, and that it will, being that of a Gloucestershire product, become synonymous with the highest class of workmanship.

A BRITISH IGNITION TRIUMPH.

The British Thomson-Houston Co. Ltd., of Rugby, seem to have had the ignition of the Aerial Derby machines pretty well to themselves. In the Aerial Derby itself the first three machines all had B.T.H. magnetos. Mr. James' "Bamel" had a B.T.H. AV12, Mr. Haig's "Bristol" had a B.T.H. AQ9, and Mr. Raynham's "Martinsyde" had a B.T.H. AV8. The same three machines in the Aerial Derby Handicap occupied second, third and fourth places, and apparently Mr. Carter's little monoplane was about the only machine not fitted with a B.T.H.

In the August Open Handicap Mr. Longton's S.E. and Mr. Robb's S.E. and Mr. Butler's D.H.37, which occupied first, second and third places respectively, were all fitted with B.T.H. magnetos. Incidentally this is the fourth successive Aerial Derby in which the first and second machines have been fitted with B.T.H. magnetos.

For some curious reason aero engines seem to suffer far more from magneto troubles than car engines. At any rate, one hears more often of such troubles. One very seldom hears of a motor car being held up on the road owing to magneto breakdown, yet aircraft are constantly suffering from it. It is therefore all the more to the credit of the B.T.H. people that so many engines of so many different makes should put up so many fine performances with this excellent Britsh product.

AN UNBIASED WITNESS.

The following is a translation of an extract from an article published in the *Voissische-Zeitung* :—

The pilot of the Fokker aeroplane "R 4," Joachim Stylbrock, of the German Air Force, who brought the Russian representative in Berlin—M. Krestinski—on Wednesday last in an 18 hour direct flight from Moscow to Berlin, reported to the representative of *Vossische-Zeitung* as follows :—

"The pilot is one of those who have done the trip from Königsberg to Moscow 14 times, but for very urgent diplomatic reasons it was necessary for M. Krestinski to undertake the flight from Moscow to Berlin direct. At the early morning start there was heavy rain, which lasted until the German frontier was crossed.

"Two Government officials travelled with M. Krestinski, with much luggage and mail, together with an aeroplane mechanic.

"The aeroplane travelled over the towns of Vyasma, Smolensk, Vitebsk, Polotsk, Dunaberg (Dvinsk), Kovno, Königsberg, and thence to Berlin. It must be remembered that the total distance was 1,800 kilometres, which was considerably lengthened owing to the Polish regulations necessitating a circling movement, keeping clear of the Polish corridor."

The pilot writes as follows concerning the engine :—

"I had the firm conviction that I should arrive safe and sound in Berlin the same evening, and now that I have been successful in this, I have not least to thank my good working 360 h.p. Rolls-Royce motor, which up to the present has run like a chronometer. It was naturally a most exciting trip, but I would like to undertake the same to-morrow."

SMITH'S AT THE DERBY.

The popularity of Smith's aviation instruments and accessories was proved once again on August Bank Holiday when every competitor in the Aerial Derby and the Aerial Derby Handicap carried Smith's instruments, the winner, "Jimmy" James, carrying a complete range of these fittings.

This is the second Aerial Derby in succession when Smith's instruments have been used by every competitor, whilst in the 1920 Aerial Derby the winner was fully equipped with all the firm's aircraft accessories.

LAMBLIN RADIATORS FOR SPEED EVENTS

The Aerial Derby was won this year by the Gloucestershire "Bamel" at an average speed of 177 m.p.h. (285 km.h.) over a course of 196 odd miles (315 km.). The nearest approach to the maintenance of so high a speed over so long a distance is claimed by the Curtiss Navy Racer in the Pulitzer Trophy, with 176.7 m.p.h. over a course of 153.6 miles.

The engines of both machines were cooled by Lamblin radiators. The French Nieuport Sesquiplan which won last year's Deutsch Cup, and holds the world's speed record, used these radiators, and, in fact, the Lamblin radiator seems to have proved itself the only radiator for really high speed machines with water-cooled engines.

For the Deutsch Cup contest the "Bamel" is to be fitted with one single Lamblin radiator instead of the two with which it is now equipped. This radiator will be of larger size than the present ones, but will be of appreciably less total resistance than those now in use.

TITANINE

FOR SPEED

The Gloucestershire Aircraft Company's

"BAMEL" (Mars I)

wins the Aerial Derby, 1922, Coated with TITANINE Special Racing Scheme.

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(continued from page 124.)

out highly efficient aircraft and engines. Just in the same way, in the early days of motoring, the maker of the car which won the Gordon-Pennett Cup, or the French Grand Prix, acquired much more kudos for his country than the maker of the motor-car which was driven from Pekin to Paris or from the Cape to Cairo.

Thus it is all to the good that once more a British machine should have won the great international event. Next year the Schneider Cup race will be held in English waters. It is to be hoped that the Royal Aero Club will rise to the occasion and will avoid the mistakes which it made at Bournemouth.

Again one would advocate that next year the race be held in some more accessible place than Bournemouth with a base at Cowes. It is true that personally one spent a most enjoyable day on Mr. Montagu Grahame-White's yacht, but the inconvenience from the point of view of the ordinary spectator was intense, and the arrangement of having the machines at Cowes instead of at an accessible place on the mainland was, to put it bluntly, an infernal nuisance.

One suggests that next year's Schneider race should be held at Eastbourne, which is eminently suitable for the job, with Beachy Head and Hastings as the turning points and the Eastbourne Aviation Company's works as the Royal Aero Club headquarters. If the R.Ae.C. wishes for the maximum amount of publicity, the race should be held from the old R.N.A.S. seaplane station at Westgate, thus assuring the fullest possible attention from what one may call the Thanet Press, whose headquarters are at Carmelite House. Westgate would at any rate have the advantage of being extremely convenient for visitors from the Continent, who can get there direct from Dover.

Again one congratulates Mr. Biard, Mr. Scott-Paine and Mr. Vane on their victory, and wishes the Royal Aero Club a successful meeting in 1923.—C. G. G.

R.A.F. INTELLIGENCE.

Appointments.

Air Ministry, Aug. 11th.

F/Lts. E. F. Turner, from R.A.F. Depot to R.A.F. Base, Leuchars, 15/7. The previous notification wherein this Officer was posted from R.A.F. Depot to No 10 Grp. H.Q. is cancelled. R. F. Durrant, A.F.C. The previous notification wherein this Officer was posted from No. 10 Grp. H.Q. to School of Naval Co-operation and Aerial Navigation is cancelled. A. Durston, A.F.C., from Seaplane Repair Base (Mediterranean) to H.Q., R.A.F. Mediterranean (Supernumerary), 1/6; T. H. Maclaughlin, from No. 2 Squadron, No. 12 Wing (Ireland), to R.A.F. Depot (Supernumerary), 5/7; G. W. Allen, from R.A.F. Depot to Marine and Armament Exper. Estab., 25/7; A. E. Jenkins, from R.A.F. Depot to No. 1 F.T.S., 12/7; C. F. Pitt, from Armament and Gunnery School to No. 39 Squadron, 28-7; J. C. Osburne, M.B., from Research Laboratory and M.O.S.I. to No. 1 School of T.T (Boys) (Halton), 24/7; P. J. Barnett, M.C., from No. 47 Sqdn. (M.E.) to R.A.F. Depot (Supernumerary), 5/7; A. E. Barr-Sim, M.B. from H.Q. R.A.F. (India), India, to Aircraft Park (India), 14/5; H. A. Perdrau, M.D., from No. 1 School of T.T. (Boys) (Halton) to R.A.F. Depot, 31/7; E. N. E. Waldron from R.A.F. Base, Gosport, to Stores Depot (Iraq), 18/7; N. Keeble, D.S.C., D.F.C., from School of T.T. (Men) to Boys' Wing (Cranwell), 25/7; F. W. Walker, D.S.C., A.F.C., from School of Naval Co-operation and Aerial Navigation to Seaplane Training School, 15/8; C. H. B. Jenner-Parson, from Seaplane Training School to R.A.F. Base, Leuchars (No. 205 Sqdn.), 15/8; E. G. Hopcraft, D.S.C., from Seaplane T.S. to R.A.F. Base, Leuchars (No. 205 Sqdn.), 15/8; J. W. B. Grigson, D.S.O., D.F.C., from R.A.F. Base, Leuchars (No. 205 Sqdn.) to Seaplane T.S., 15/8; G. H. Reid, D.F.C., to R.A.F. Depot (Supernumerary), 16/7; Frederick Petch, M.B.E., from H.Q. R.A.F. (Iraq), to R.A.F. Depot (Supernumerary), 11/6; J. H. W. Fitzgerald, from C.F.S. to No. 11 Wing H.Q., 1/8; A. N. Benge, from R.A.F. Depot to No. 5 F.T.S., 1/8; C. L. P. Mullany, from No. 1 Armoured Car Coy. (Middle East) to Egyptian Group H.Q. (Supernumerary), 4/5; J. H Simpson, from Palestine Wing H.Q. to H.Q. (Iraq), 28/6; E. E. Isaac, M.C., from R.A.F. Depot to M.T. Repair Depot, 25/7; G. H. H. Maxwell, M.B., from No. 39 Sqdn. to R.A.F. Depot (Supernumerary), 1/8; J. Wren, from H.Q. M.E.A. to Aircraft Depot (M.E.), 28/4

The School of Military Administration.

It is announced that two courses of instruction will open at the School of Military Administration, Chisledon, on Sept. 15th. In one course there will be places for 45 junior officers, including six in the R.A.F. In the other course, to be attended by quartermaster-sergeants, three places will be allotted to the R.A.F.

The R. M. Groves Prize.

The R. M. Groves Aeronautical Research Prize for the year 1921 has been awarded to S/Ldr. R. M. Hill, M.C., A.F.C., Officer-in-Charge of the Experimental Flying Department of the Royal Aircraft Establishment.

This prize is awarded annually to the officer, non-commissioned officer or man who, in the opinion of the Air Council, has done most during the preceding year to advance aeronautical science on the technical and research side.

The Gordon Shephard Memorial.

The following subjects for essays have been selected for this year's competition for the Gordon Shephard Memorial Prize :—

(1) The use and employment of aircraft in open, as opposed to trench, warfare against a similarly equipped enemy.

(2) The employment of aircraft before and during a Fleet action.

Separate prizes will be awarded for each of the two essays The competition is open to all R.A.F. Officers, N.C.O.s and men.

18 Squadron Dinner.

It has now been definitely arranged to hold the re-union dinner for the officers who served in 18 Squadron during the war on Saturday, September 2nd, at Anderton's Hotel, Fleet Street. Tickets, price 10s. 6d., can be obtained from J. Fuller, Esq., 10, Burlington Gardens, Bayswater.

R.A.F. SPORTS AND PASTIMES.

R.A.F. Cricket.

On July 10th and 11th at the Oval, the R.A.O.C. beat the R.A.F. by 6 wickets. The Air Force made 77 runs in the first innings, F/O. Wagner scoring 21 not out. In the second innings they scored 215, F/O. Wagner contributing 126 and F/O. Wigglesworth 30. F/Sjt. Charteris took 5 wickets for 28 and F/Lt. Morice 2 for 20.

The R.A.F. played the R.N. at Mount Wise on July 21st and 22nd. The Air Force batted first, making 247 runs, the top score being 86 by F/Sjt. Charteris. S/Ldr. Blount made 37 and F/O. Wagner 26. The Navy then went in and made 353, F/O. Windle taking 3 of their wickets for 39, and F/O. Wagner taking 4 for 74. In their second innings the R.A.F. made 165 runs.

Iraq Aircraft Depot.

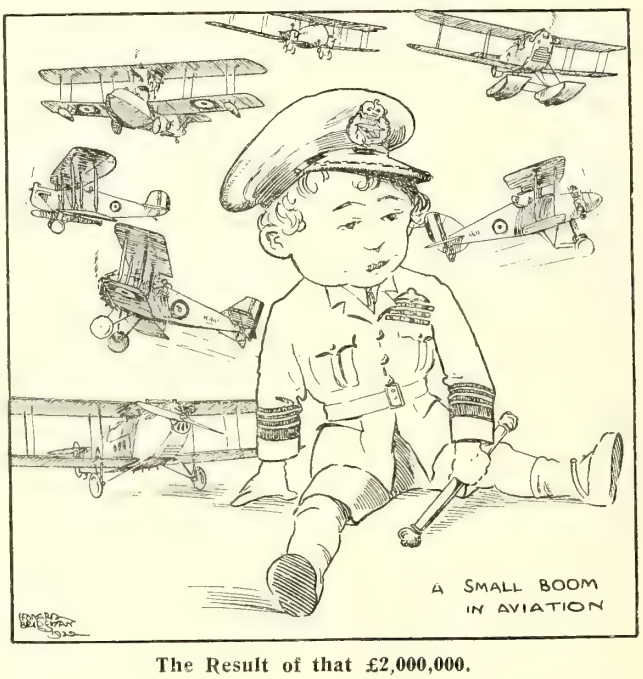
Cricket.—The first of the League matches was played against the Citadel, the latter making 289 for 8 wickets, and the Depot 74 for 6 wickets. Playing against the Telegraph Cricket Club, the Depot lost by 29 runs. In this match S/Ldr. Baldwin took 7 wickets for 18 runs. The Depot tied with Group H.Q., both sides making 129 runs. For the Depot AC. Cohen took 3 wickets for 5 runs. No. 6 Sqdn. beat the Depot by 101 runs. At the end of this match the pitch was found to be 5 ft. 4 in. short.

The Depot's first win was against No. 30 Sqdn., when they made 103 in the first innings, No. 30 making 35 and 46. Bowling for the Depot S/Ldr. Baldwin took 4 wickets for 16 in the first innings and 4 for 30 in the second. AC. Shearing took 6 for 12 and 6 for 14. No. 1 Sqdn. beat the Depot by 6 wickets, Wainwright (No. 1) taking 5 wickets for 9.

A dust-storm interrupted the game against G.H.Q. with the Depot out for 117, and G.H.Q. with 88 runs. Playing against the British Club on May 13th and 14th, the Depot was defeated by 98 runs. AC. Shearing took 8 wickets for 29. The Depot beat No. 1 Armoured Car Co. by 10 wickets. AC. Shearing took 5 for 8, and AC. Dowden 5 for 5 and 5 for 21. No. 45 Sqdn. lost to the Depot, the latter making 179 for 6 wickets, No. 45 getting 69 in their first innings, and 96 for 7 wickets in the second. AC. Harrison took 4 wickets for 15 runs. The Depot were beaten by the R.A.M.C. by 20 runs.

Playing against 70 Sqdn. the Depot made 58 runs in the first innings and 82 for 4 wickets in the second, 70 Sqdn. making 35 and 61 for 5. AC. Harrison (I.A.D.) got 44 runs and AC. Shearing took 4 wickets for 11.

WHAT WE HOPE TO SEE.



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A LAMENTABLE OCCURRENCE.

It had not been one's intention to draw attention to the melancholy fact, apparent from the "London Gazette" of August 1st, that Mr. Patrick Alexander had been compelled to file his petition in bankruptcy. One had hoped that some of Mr. Alexander's wealthy friends might have seen him through without everybody being made aware of his misfortune. Unfortunately what appears to be unnecessary publicity has been given to this unhappy event, and therefore one can only add one's own to the many expressions of sympathy which Mr. Alexander has already received and hope that perhaps the notice which has been taken of this affair may tell of it to some of those who are in a position to help but might otherwise not have known.

Ever since the earliest days of aviation long before men flew Mr. Alexander has been regarded as a kind of Maecenas of aviation. He spent quite considerable sums in experimental work and always made a point of being present himself whenever any event of importance was occurring. He encouraged many young experimenters and in 1911 he presented a prize of £1,000 for an aero engine test, which was ultimately won by a Green engine. Some idea of his generosity may be gathered from the fact that in 1915 he presented £10,000 to the Headmaster of the Imperial Services College at Windsor, the establishment which was formerly known as Westward Ho and is immortalised by Mr. Kipling in "Stalky and Co." Before this he had presented to the college a beautifully equipped laboratory for aeronautical experiments, including a wind tunnel with all necessary accessories.

That a man of his generosity should be allowed to fall on hard times is truly lamentable, and it is earnestly hoped that a way will be found to help him out of his difficulties.—C. G. G.

AIRCRAFT IN PARLIAMENT

HOLT AND CO.'S CLAIMS:—Mr. Baldwin Raper asked the Secretary of State for Air (1) whether, in fact, the interpretation which is now sought to put on Air Ministry W.O. 73 and 263 of 1919, was originally contemplated by the Air Ministry, or has been adopted quite recently as the result of the great reduction in the Vote for the Royal Air Force; and whether if the present interpretation was that originally intended to be borne by those Orders steps can be taken whereby the burden of the error should fall on the firm which was responsible for that error rather than that they should be permitted to attempt to secure repayment from the officers involved; (2) if Air Ministry Weekly Orders Nos. 73 and 263 of 1919 are framed in such terms that officers affected by them could not be expected correctly to interpret them; and were many officers, whose gratuity claims have now been held to be adversely affected by these Orders, demobilised before these Orders were published.

Capt. Guest: As regards the first question, the present interpretation of the Weekly Orders is that originally intended; the Orders were, however, modified in certain respects by later Orders issued in March, 1919, but solely in the direction of favouring officers. In reply to the second part of the question, I would refer my hon. Friend to my general reply to his subsequent questions. As regards the second question, I cannot accept the suggestion that the terms of the Orders were such that officers affected by them could not reasonably be expected to interpret them correctly. The Orders were issued in January and February, 1919, and they did not adversely affect the gratuity claims of such officers as were demobilised before their issue.

[Certain officers were demobilised before the publication of these Orders and so could have no knowledge of them.—Ed.]

Mr. Raper asked the Secretary of State for Air (1) whether he is aware that cases of irregularities of a grave nature have been found in the pay accounts of individual officers, Royal Air Force, who have been obliged to deal with Holt and Company; and, if so, whether the question of retaining this firm as Army agents can be reconsidered.

(2) Whether the payments made to demobilised ex-officers by Holt and Company, purporting to be a final settlement of the whole of their pay and gratuity accounts, were not properly to be so regarded by the officers concerned; and, if so, why are attempts made to reopen the accounts after a lapse of two and a half years, and to demand the refund of sums which, even if paid in error, were received in all good faith.

Capt. Guest: As regards the first question, I am aware that, in a limited number of cases, over-issues of pay were made to officers, and that the bankers responsible for making these over-issues have been endeavouring to recover from the officers concerned the amount of the over-issues. These over-issues of pay were the not unnatural result of the rapid demobilisation of over 20,000 officers, and I do not think that they constitute sufficient reason for dispensing with the services of the firm in question. I may mention that since April last all Royal Air Force officers have been given the option of drawing their pay either from an Accountant Officer or from the agents, and a very small number indeed have decided to change from the agents. As regards the second question, the payments made by the agents were subject to audit, as are all payments out of public funds, and disallowances consequently arose, but I am informed that in no case has so long a period as is suggested in the question been allowed to elapse before recovery has been attempted.

[The Air Ministry Orders were issued in January and February, 1919. Holt and Co. did not make claims against certain officers demobilised in February, 1919, until September, 1921, and stated in making those claims that the mistake had only just been notified to them.—Ed.]

Mr. Raper asked the Secretary of State for Air why it has been decided to treat service as a technical officer of the Air Board as service in civilian employment for the computation of gratuity in the case of officers of the Royal Naval Air Service and of the Royal Naval Volunteer Reserve who were ordered to such service, not only without notice that their status as naval officers was in any way affected, but, in some cases, with a definite assurance from the Admiralty that that status was maintained?

Capt. Guest: The decision to exclude the service in question from the computation of gratuity was in accordance with the Admiralty Order which governed these officers' gratuities, the principle being that service on other than naval rates of pay was not gratuity-bearing.

CIVIL AVIATION:—On August 3rd, the Secretary of State for Air, in reply to a question by Capt. Wedgwood Benn, said that so far as Civil Aviation is concerned the recent Order in Council redistributing the duties of the Air Council merely confirms arrangements actually in force for some months' time. That is to say, Civil Aviation business is conducted by a Director of Civil Aviation, who is responsible to the Parliamentary Under-Secretary of State. As a Minister of the Crown the Under-Secretary of State can deal authoritatively with matters of Civil Aviation policy with the advice and assistance of the Director of Civil Aviation and his staff. Capt. Benn asked whether Civil Aviation was previously represented by its Chief on the Air Council, and was told, "Yes, that is so."

PERSONAL NOTICES.

Deaths.

ARIOLI.—On May 26th, in a motor accident, the Cavaliere Mario Arioli, of Milan.

Many of the old-timers of British Aviation will learn with deep regret of the death of Mario Arioli, who did much to help to popularise aviation in South Wales and the West of England in 1911 and thereafter. Arioli was studying the English language and business methods in Cardiff when he became very friendly with the late B. C. Hucks, and after their meeting he spent as much as possible of his spare time assisting Hucks in his various exhibitions. In particular he was largely responsible for the latter's successful visits to Cardiff.

On the outbreak of war between Italy and Austria Arioli returned to Italy and joined the Army, but his knowledge of England and of the English language soon caused him to be appointed to special duties which involved journeys to England. Later his business ability and experience of automobiles led to his establishing at Milan the Campagnia Italiana Magneti ed Accessori per Auto, now known all over Europe as the C.I.M.A., which resulted in considerable business between England and Italy.



Though not directly concerned of late with aviation, Mario Arioli remained always closely in touch with aeronautical developments, and was extremely popular with all the aviation people in and around Milan, who deeply mourn his loss.

Mario Arioli was a fine example of the best type of Northern Italian. He was a keen man of business, yet a thorough sportsman. Kindhearted and generous to the highest degree, he was an ideal host and a firm friend. His death was in a way typical of him. Driving a fast car at night, he came suddenly on a drunken man in the road. To avoid him he deliberately wrecked his own car and was killed in doing so. Thus are valuable lives sacrificed to save the worthless in time of peace as well as in war, as so many of us know. To all those who knew and loved Mario Arioli one offers the deepest sympathy.—C. G. G.

GILL.—On July 27th, at The Hatch, Canterbury, in his thirty-first year, David Gill, A.M.I.E.E., late Capt. R.A.F., dearly loved and only child of Mr. and Mrs. A. A. Gill.

Engagement.

OPENSHAW—HAYDON.—The engagement is announced between F/Lt. Edward Reginald Openshaw, R.A.F., late 1/4 Somerset L.I., only son of the late Lieut.-Col. E. Hyde Openshaw and Mrs. Openshaw, of Cheddar, Somerset, and Helena Louise, eldest daughter of Mr. and Mrs. Charles M. Haydon, of Lynnfield, Kirkwall, Orkney.

Marriages.

HENDERSON—KEMP.—At the Church of St. Peter's-in-the-Chains, Hornsea, on July 22nd, 1922, Sjt.-Maj. Edward G. Henderson, M.C., Inland Area Aircraft Depot, R.A.F., Henlow, to Miss Ethel Kemp.

HOUSSEMAYNE-DU BOULAY—KNOX.—On August 3rd, at St. Mary's East Grinstead, Guy George Houssemayne-Du Boulay, R.A.F., only son of Mr. and Mrs Ralph Houssemayne-Du Boulay, of East Grinstead, and Raby Violet Emmeline, youngest daughter of Mr. Godfrey Knox, of Sally Park, Templeogue, Co. Dublin.

WATSON—CROWLEY.—On July 24th, at the Church of Our Lady of Ransom, Eastbourne, Stuart McDonald, R.A., attached R.A.F., only son of Mr. and Mrs. J. A. S. Watson, of Ellangowan, Willingdon, Eastbourne, to Sheila Edythe Hilary, daughter of the late Mr. and Mrs. T. P. Crowley, of Allahabad, India (South African and Indian papers please copy.)

Births.

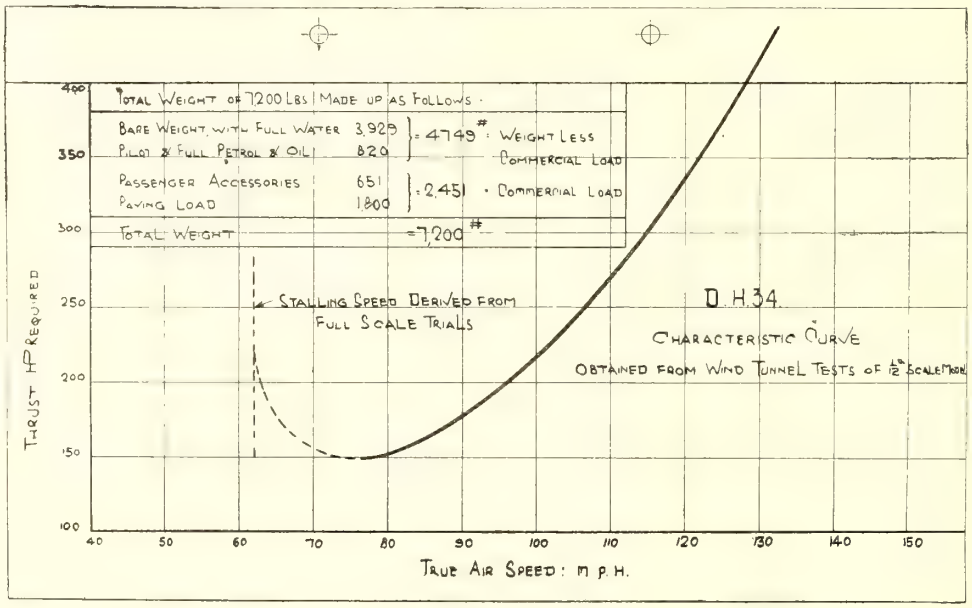
BRIDDON.—On July 26th, to Dorothy, wife of F/Lt. A. J. Briddon, R.A.F.—a son.

SMITH.—On July 31st, at The Priory,, Grantham, to Winifred, wife of Wing/Cmdr. Sidney Smith—a daughter.

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CONTINENTAL ARRIVALS AND DEPARTURES.

ABBREVIATIONS:—A.D.—Aircraft Disposal Co. B.A. Berkshire Aviation Co. B.C.—Bristol Aeroplane Co. C.A.—Department of Civil Aviation. D.A.—Daimler Airway. D.H.—De Havilland Aircraft Co. G.E.—Compagnie des Grands Express Aeriens. H.P.—Handley Page Transport Ltd. I.L.—Instone Air Line. K.L.—Koninklijke Luchtvaart Maatschappij. L.A.—Leatherhead Aviation Services. M.A.—Messageries Aeriennes. M.W.—Marconi Wireless Telegraph Co. Ltd. P.O.—Privately owned. W.A.—Westland Aircraft. S.F.—Surrey Flying Services.

ANALYSIS OF FIGURES.

For week ending Aug. 6th.

Number of trips made during week.—I.L. 43, H.P. 17, D.A. 32, M.A. 33, G.E. 10, K.L. 22, D.H. 2, S.F. 2.

Number of passengers carried.—I.L. 164, H.P. 112, D.A. 103, M.A. 37, G.E. 26, K.L. 21, D.H. 3, S.F. 2.

Total number of trips by British machines: 96 carrying 384 passengers.

Total number of trips by foreign machines: 65 carrying 84 passengers.

Trips per day.—Monday 25; Tuesday 27; Wednesday 24; Thursday 26; Friday 24; Saturday 29; Sunday 6.

STATISTICS.

Machines, 161; Passengers, 468; Crews, 266; Total Personnel, 734

Corresponding week last year:—

Machines, 107; Passengers, 470; Crews, 132; Total Personnel, 602

Corresponding week, 1920:—

Machines, 104; Passengers, 212; Crews, 131; Total Personnel, 343

For week ending Aug. 13th.

Number of trips made during week.—I.L. 37, H.P. 26, D.A. 32, M.A. 33, G.E. 12, K.L. 22.

Number of passengers carried.—I.L. 132, H.P. 178, D.A. 107, M.A. 33, G.E. 37, K.L. 18.

Total number of trips by British machines: 95 carrying 417 passengers.

Total number of trips by foreign machines: 67 carrying 91 passengers.

Trips per day—Monday 20; Tuesday 22; Wednesday 29; Thursday 28; Friday 27; Saturday 26; Sunday 10.

STATISTICS.

Machines, 132; Passengers, 508; Crews, 248; Total Personnel, 756

Corresponding week last year:—

Machines, 109; Passengers, 448; Crews, 140; Total Personnel, 588

Corresponding week, 1920:—

Machines, 123; Passengers, 234; Crews, 139; Total Personnel, 373

NOTES OF THE WEEK.

In the first two or three days of the week various machines which arrived for the Arial Derby fled away to their respective lairs. On Wednesday morning Mr. Larry Carter took the successful Bristol monoplane back to Filton, and the following day F/O Haig took away the Bristol "Bullet." With regard to the shortage of oil in the "Bullet," which prevented it from finishing the Derby "all out," it was found that the raising of the compression in the engine increased the consumption of the oil. There was easily room in the tanks for a little more oil, and it was hard luck on Mr. Haig that this little misunderstanding robbed him of victory.

On Wednesday afternoon Mr. Hinkler went away in the "Baby" Avro and the "Bamel" is being taken by road to Cheltenham, where it is being fitted with wings of a flatter section to increase its speed for its next effort, which will be the Deutsch Cup. The "Sprawk" still remains at Croydon. One gathers that the Gloucestershire Company intend to enter this machine for the King's Cup, which takes place at Croydon in three weeks' time, and presumably the "Sprawk" will remain there until then.

The Air Lines have been taking a record number of passengers during the past week. On Saturday morning the Instone "Vulcan," with Mr. Bradly as pilot and with Mr. Shepperson among the passengers, went to Brussels, landing at St. Inglevert on the way to shed Mr. Shepperson who was to pick up Vulcan G-EBEA which damaged a wing tip in a forced landing there recently. On his way back from Brussels Mr. Bradly landed at Woldingham through lack of petrol and damaged the machine somewhat. One of the American passengers apparently took great delight in photographing Mr. Bradly amid the wreckage before he helped him out. This is not the first time on which a Vulcan has been forced to land through lack of petrol on the London-Paris route, and is the second or third time in which damage his been sustained. Therefore it seems that the three and a quarter hours' petrol provided is insufficient. One suggests that this should be increased forthwith.

On Monday of this week a party of 62 girls from an educational establishment called Wooster College, in the U.S.A., travelled from Paris to London *en masse*. They were taken over in the "Vimy" and three D.H.34s, each of which made two trips. They seemed to have enjoyed themselves immensely and were escorted by Dr. Kelso, with whom they had been "seeing Yurrup."

This is the biggest single party which has crossed the Channel by air and may be taken as indicative of the aerial *char-á-bancs* parties of the future. It is true that the affair comes under the generic heading of "stunts," but it is at any rate a happy augury for the future of aerial passenger carrying.

On Thursday Mr. Courtney took a D.H.18 to Brussels with a Lietner-Watts all-metal airscrew; the first time a metal screw has been used for passenger work.

Handley Page Transport have been carrying good loads on the W.8 and W.8b. On Monday last the W.8b made a test flight with an agglomeration of beauty hitherto unsurpassed. Among the passengers was Colonel Bristow.

The previous week-end considerable comment was caused by the fact that the largest percentage of passengers for the number of machines on any route leaving Le Bourget was carried by Handley Page Transport.

The W.8 (Napier engines) has had further modifications made to it during the week, and is now once again ready for the service.

Every day and in every way the traffic carried by the Daimler Airway is getting heavier and heavier. The wonderful reliability and regularity of Col. Searle's service has undoubtedly made an impression on the public, and, what is more important still, on the agents, and even Mr. Fox in the Paris office must now be getting quite cheerful. All the three machines are getting their fair share of work, though it will be a long time before any of them surpasses the record of the bright one of the family G-EBBS.

The Surrey Flying Services are busy every day with their 5s. joy-rides, and they also get quite a number of longer flights and stunt flights. Mr. Muir tells one that the D.H.9 which is being prepared for the Duke of Sutherland for the King's Cup race will be out either this or next week. On Sunday last Mr. Muir and Mr. Youell between them carried over 300 passengers at 5s. per head. Verily, the price of living is coming down.

The regularity of the Royal Dutch Air Service is still one of the features of the aerodrome, and it is seldom that there is any weather sufficiently bad to prevent the Fokkers from getting through. Mr. Leverton expects that the "Puma" machines will shortly be replaced by those with Rolls-Royce "Eagle VIII" engines, and the first of this type is incessantly expected. Their speed will be considerably in excess of the present machines, the idea being that they will be able to get through absolutely in all weathers, as the "Puma" machines only forced-land when they can make no headway against the gale.

The C.M.A. are now dividing their services up into goods traffic and passenger traffic, and passengers are not carried on machines which are reserved exclusively for goods, and *vice versa*. The Spads and Breguets are the freighters and the ever-excellent Renault-Goliaths are the passenger machines.

Mr. Bouderie and his Grand-Express Goliaths are still going strong with their once-a-day-in-each-direction line.

The C.M.A. have instituted a service from Croydon to Marseilles. The machines leave Croydon every Monday and Friday at 08.00 hours, reaching Marseilles at 17.10 hours. The return journeys are made on Tuesdays and Saturdays, leaving Marseilles at 09.00 hours and arriving at Croydon at 18.30 hours. The fare is 17 guineas.—G. D.

Efficiency.

Sir,—With reference to an article entitled "British Airway Efficiency," which appeared in a paper other than The Aeroplane on July 27th, we should like to point out that their method of calculating efficiency on flights attempted as against flights completed is extremely misleading. By this method any firm with reasonably efficient machines could easily obtain 100 per cent. efficiency by refusing to fly in doubtful weather.

On the above basis the Royal Dutch Air Service has an efficiency record of 99 per cent. for June, one flight not having been completed owing to bad weather. Moreover, this includes the only two completed flights between Terminal Aerodrome and Terminal Aerodrome made by any machines on the day of the great gale. A much fairer standard is to be found in a table of efficiency where flights advertised are compared with flights made, in the *Times* of July 14th.

If the record of the Royal Dutch Air Service for flights advertised as against flights completed were added to this table it would read as follows:—

	Flights Advertised.	Flights Made.	Percentage.
Royal Dutch Air Service ...	103	91	88.35
Daimler Airways	104	84	80.77
Instone Air Line	108	69	63.89
Handley Page	104	66	63.46

It is therefore not unnatural that we object to the inference in the concluding paragraph of the article referred to above which, after mentioning one French firm, lumps "all other companies" together with an efficiency of 76.2 per cent.

(Signed for the Royal Dutch Air Service),
H. Spry Leverton (Aerodrome Manager).

Berks Aviation Co., Ltd.

The B.A. Co. have been flying at Bideford, N Devon, during the August holidays—being kept busy throughout.

Mr. S. F. Woods joined the company here as pilot—taking the place of Mr. A. L. Robinson, who is now on the Cross-Channel Service.

"Wilfred"—the wolfhound mascot—had the misfortune to be run over by a car in Barnstaple—however, his tail was the only part damaged.

On Thursday last the firm left Barnstaple for Sherborne, Dorset, where they are now flying. On Sunday crowds rolled up to the field to watch the stunts in the evening, when Messrs. Holmes and Taylor "walked the wings."

Races for young ladies and children were organised in the afternoon, the prize in each case being a free flight.

One shilling raffles also were all the go, dozens of people "sporting" a shilling in the hope of winning a cheap flight. The usual hedge crowd were much in evidence.

The firm propose visiting Dorchester next week.

Ripon.

The Berkshire Aviation Tours after a fairly successful stay at Richmond, Yorks, despite the small population of the place, flew over to Ripon on July 26th and are flying from a small field in a hollow about 1½ miles from the town. They have been taking up a few people when the weather has allowed.

On the Saturday it poured with rain all day, but on Sunday they just failed to take up 100 passengers, though they had over 1,000 people on the field, so did fairly well. Mr. Ferrand flew an elderly lady and her daughter over to the Stray, Harrogate, in a young hurricane and had a very bumpy time, especially when flying back solo.

PROFESSED PATRONS.

There is a large number of people at present going about the place who are very intent on impressing anybody and everybody with the fact either that they are pioneers or patrons of aviation. In the majority of cases it seems very difficult to trace any good that these people have ever done to aviation in any way whatever.

A golden opportunity for any wealthy people who really have the good of aviation at heart has now arisen. On September 8th there will take place the competition for the cup which His Majesty the King has been graciously pleased to offer for a flight round the Realm. Any private individual who will put up the price for entering a machine for this race will be doing a very great service to the whole industry, and, furthermore, it will not cost them very much.

Such well-known benefactors of aviation as the Duke of Sutherland and Colonel Frank McClean have already bought machines and entered them for the race. And there are signs of others who have aviation genuinely at heart also entering machines.

Another way in which these would-be or wouldn't-be benefactors can help would be by offering a challenge cup and a monetary prize for a big international race. We have the Deutsch Cup for racing land machines, though it is not quite clear whether, like the Gordon-Bennet race, if any country other than France won it the race in the succeeding year would take place outside France.

So far as one can gather, the Deutsch Cup is run on lines similar to the Aerial Derby and the Pulitzer Trophy, and takes place regardless of who has won it in the country of its origin. Therefore, if anybody wishes to perpetuate their name in the annals of aviation here is an opportunity. At present it seems that the only international movable feast is the Schneider Cup.—G. D.

SELL ON! CELLON.

It is interesting to note that the Supermarine "Sea Lion II," which won the Schneider Cup, was doped with Cellon.

Furthermore both Mr Larry Carter's Bristol "Lucifer" monoplane and Mr. Haig's Bristol "Jupiter" biplane, which finished first and second in the Aerial Derby Handicap, were doped with Cellon dope.

It will be recalled that the first machine that ever won the "first Aerial Derby as ever was" was also doped with Cellon.

CAPT. MACMILLAN'S PROGRESS.

On August 9th the new engine lent by the Maharajah of Bharatpur was fitted and run up on the ground. After a few minutes' running the airscrew burst. In the meantime the previous airscrew had been partially eaten by white ants. A new one was supplied by the aforementioned Maharajah. It was at this point, according to the *Daily News*, that Major Blake, one of the passengers, decided to proceed to Calcutta by train. Capt. Macmillan is therefore now the only member of the party who has done the whole journey to date by air.

Capt. Macmillan, accompanied by Mr. Malins, arrived at Calcutta at 18.27 hours on August 12th, having had a forced landing at Gaya on the previous evening after flying through a storm. In Calcutta the D.H. 9 is to be sold by auction, and Capt. Macmillan will continue his journey on a Fairey Seaplane.

A later message adds that Capt. Macmillan had to land at Cawnpore owing to trouble with the new engine. After cleaning the filters they were able to proceed to Gaya, where the machine stuck in the mud and a soda-water bottle shot out of a locker and fell through one of the wings. Heavy rainstorms were encountered between Gaya and Calcutta, but Capt. Macmillan succeeded in weathering them and landed at Calcutta on August 12th.

No praise can be too high for Capt. Macmillan's skill and pluck in taking the machine through the appalling monsoon weather experienced in India. Those who knew him in England recognised him as one of our best pilots, and their judgment is now fully confirmed. All will hope that better luck may follow his future efforts on the Fairey seaplane on which the next part of the journey is to be attempted.

The journey began on May 24th and so has taken close on three months. In that time 9,000 miles have been covered in 94 flying hours.

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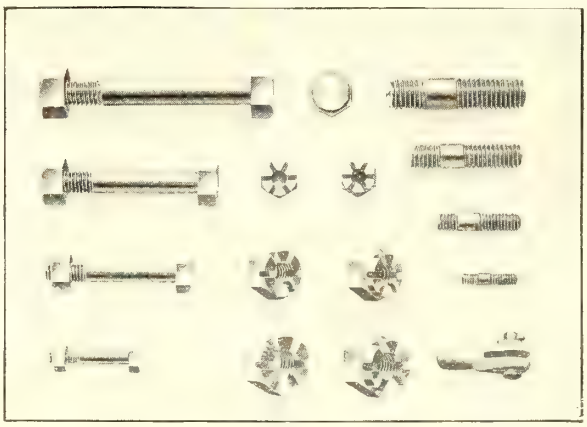
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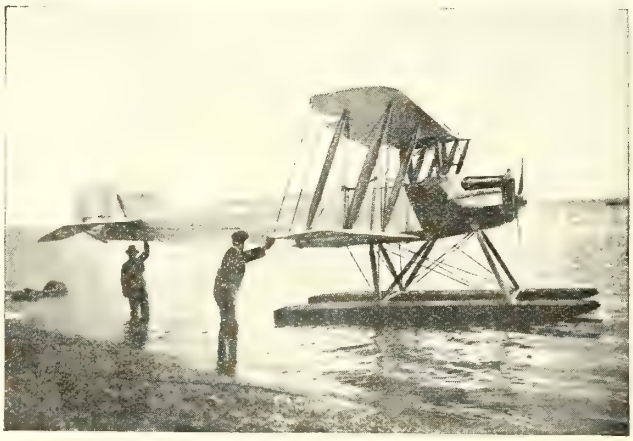
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ON ORDERS FOR AIRCRAFT.

Articles have appeared in various papers to the general effect that the Air Ministry is about to spend between £200,000 and £300,000 almost immediately in orders for the Aircraft Industry. This information is true so far as one can gather unofficially, and it appears that no Air Ministry communiqué is to be issued on the subject.

It is known that some firms have already been given orders in addition to those on which they were working when the recent agitation began. Other firms though they have not actually received orders have been given to understand that certain orders will be placed with them in the very near future. But in no case which one can discover has anything in the way of a production order been given.

This is regrettable, but quite understandable. £200,000 would be just about enough to make one decent production order for one type of machine for one firm. In these days, when an aeroplane of quite moderate size with an engine of between 400 and 600 h.p. costs £4,000 or so, £200,000 only means 50 aeroplanes. And anything less than 50 machines can scarcely be called a production order, for production in its modern sense means standardisation of parts, and it would never pay to set up special tools and jigs to make less than fifty of anything.

Apparently the orders placed so far consist chiefly of experimental machines. That is to say, where a firm has got a couple of experimental machines on order it has been instructed to make three or four more of the same type. But, as a matter of fact, experimental machines are not a paying proposition to the aircraft trade.

One or two firms who have gone back to the beginning of things and now build machines very much as aeroplanes were built before the War, that is to say in sheds on aerodromes or in disused skating rinks or the like, having very small overhead charges can perhaps manage not to lose money on experimental machines. But where firms have endeavoured to retain big and efficiently equipped factories in the hopes that some day they might be of use in the construction of aircraft such firms obviously cannot build machines singly or in half-dozens and make them pay at the low prices on which the Air Ministry, very properly in the interests of the Taxpayer, insists.

Nobody in the Aircraft Industry blames the Air Ministry or anybody in the Air Ministry for the present state of affairs. But one may very properly blame the Government, and more especially the Prime Minister, for adopting the customary procedure of spoiling the ship for a ha'porth of tar.

It will be remembered that on August 3rd the Prime Minister made a great parade of the Government's action in having accepted as he alleged "a scheme submitted by the Air Ministry providing a force of 500 machines for home defence at an increased cost of £2,000,000 per annum." As pointed out at the time, the ignorantly optimistic imagined that 500 machines were to be ordered for home defence purposes, which would mean spending on these 500 machines approximately the whole of the £2,000,000 mentioned by the Prime Minister. Also they foolishly imagined that the "£2,000,000 per annum" referred to this particular present annum, 1922.

The trickiness of the phrase is precisely what might have been expected from Mr. Lloyd George. The only thing about which to be surprised is that his Government actually sanctioned the spending of so much as £200,000 in the present year. Under ordinary circumstances one would have expected his promise to have operated much in the same way as all his various other promises, such as cutting down expenditure on unnecessary Government officials and saving money by various other necessary reforms. It would appear in fact that Mr. Lloyd George's promises concerning expenditure in necessary directions are worth just about as much as his promises concerning economies in unnecessary expenditure.

Why he found it necessary to mention the 500 machines or the £2,000,000 at all is rather difficult to understand. It appears that the figures have nothing whatever to do with this year, and so far as next year is concerned it was entirely unnecessary to mention any figures at all. All that should have been necessary was to put down the extra few millions in the 1923-24 Air Estimates and then explain to the House that this expenditure was in accord with Captain Guest's speech on the 1922-23 Air Estimates because the time had come to consider air defence seriously.

For the sake of stopping the Press campaign which preceded his speech on August 3rd, Mr. George might just as well have said that it was proposed in the course of the next two or three years to add a further 15 regular squadrons and 5 Territorial squadrons with the necessary equipment of new machines to the Air Force at home specifically for home defence. It will be remembered that in his speech in the House of Commons on that date Mr. George never even suggested that the 500 machines or the £2,000,000 were to be available as a sort of Supplementary Estimate this year. Nor did he suggest that they would be forthcoming next year or the year after. He merely referred to "an increased cost of £2,000,000 per annum," and if pressure on the Government is in any way relaxed we shall probably find that highly necessary expenditure postponed year after year, with the true Lloyd Georgian regard to keeping strictly to the letter of his statements and ignoring the spirit thereof.

It is true that he added that considerable orders in execution of this programme would be placed in the current year and that the foregoing decision would not prejudice a further expansion of the R.A.F. if this were found necessary to our national security at a later date. National security in Mr. Lloyd George's idea apparently consists in maintaining Mr. George as Premier. Therefore apparently the only way in which national security can be effected as far as aircraft is concerned is by impressing on the British Taxpayer that if this country is not adequately equipped for self-defence in the air Mr. Lloyd George and his party must be removed from office. In the event of such an expulsion being threatened doubtless Mr. Lloyd George will take quite a different view of the importance of aircraft to our national security.

One commends this view of the matter to the Press in general for their attention so soon as Parliament re-assembles and the Taxpayer returns from his holidays and the Press can devote space to matters of less importance than seaside bathing girls, chars-á-bancs accidents and fish-paste poisoning. Meantime the Aircraft Industry will doubtless continue to rub along in a half-starved condition on this latest attempt by the Prime Minister to retain votes by issuing at the expense of the Taxpayer doles which merely result in expenditure without causing production on an economic basis.—C. G. G.

ON GERMAN SOARING EXTRAORDINARY.

The opening days of the Rhön soaring competitions from August 9th to 15th seem to have been attended by unpropitious weather. On August 16th, however, Herr Martens made a flight of 18 mins. 45 secs., including figures of eight and circles.

On August 18th the same pilot qualified for the 100,000 mark prize offered by the "Verband Luftfahrzeug Industrieller" in a flight of 1 hr. 6 mins. He passed the starting line 43 mins. after the ascent and landed 10 k.m. to the west near Weyhers.

On the following day Herr Hentzen, said to be a pupil of Herr Martens and to have flown the same machine, put this performance into the background by a flight of 2 hrs. 0 mins. 10 secs. He cruised in the vicinity of the starting point for 1 hr. 45 mins., crossed the starting line and landed nearly at the same place as had Herr Martens.

The conditions to be fulfilled for the award of this particular prize were:—

That the competitor fly against the wind between two posts on the starting line, 100 metres apart, after having been

in the air for a minimum of 40 minutes, and that after passing he is to cover a distance from that starting line of at least 5 km. measured in a straight line. The prize is to go to the longest flight, in time, fulfilling these minimum conditions.

When the regulations were published it was scarcely expected, even in Germany, that they would be fulfilled, and the very large margin by which Herr Hentzen has exceeded the minimum requirements is certainly astonishing. There can be no doubt as to the very great lead held by the Germans in this branch of aeronautics.

The qualities which permit of flights of this type are :— (a) Suitable wind conditions, (b) skilful piloting, (c) high aerodynamic efficiency, and (d) great controllability.

The wind conditions are out of human control and this at once puts a limit to the practical value of soaring, at least in most civilised countries. The precise type of skill needed by the pilot may, or may not, be of value in normal flying.

But the qualities required from the machine are qualities required for the efficiency and safety of any aeroplane.

The Germans have chosen to experiment under conditions which call for these qualities of high efficiency and controllability in an extreme degree. They have achieved startling success, and there can be no reasonable doubt that, with the knowledge which these tests have brought to them, they will be greatly helped in producing military and commercial aeroplanes of greatly improved economy.

This is the important aspect of the German soaring experiments. Nobody with any knowledge of the facts will expect to see the aero-engine disappear in the future on the strength of flights which—so far as pure performance is concerned—are the equal of Wilbur Wright's first public flights in Europe 14 years ago. But one may reasonably look to the doubling of the weight per h.p. carried by the aeroplane of a few years hence as the direct outcome of the knowledge acquired in these trials.—W. H. S.

R.A.F. INTELLIGENCE.

Appointments.

Air Ministry, Aug. 18th.

Air/Coms. L. E. O. Charlton, C.B., C.M.G., D.S.O., from R.A.F. Depot to command No. 7 Group H.Q., 1/9; T. C. R. Higgins, C.M.G., from No. 7 Group H.Q. to Air Ministry on appointment as Director of Training and Staff Duties, 1/9; Grp/Capts. C. L. N. Newall, C.M.G., C.B.E., A.M., from Air Ministry to No. 1 School of T.T. (Boys) (Halton), 24/8; A. G. Board, C.M.G., D.S.O., from No. 1 School of T.T. (Boys) (Halton) to Air Ministry on appointment as Deputy Director of Personnel, 244/8; J. G. Hearson, C.B., D.S.O., from R.A.F. Depot to H.Q., R.A.F. (Iraq), 28/7; E. F. Briggs, D.S.O., O.B.E., from R.A.F. Depot to H.Q., R.A.F. (Iraq) (Supernumerary), to command Basrah Group H.Q. (on formation), 28/7. Wing/Comdrs. A. V. Bettington, C.M.G. The previous notification concerning this Officer is hereby cancelled. I. T. Courtney, C.B.E., from H.Q. (C.A.) to British Naval Mission, Greece, on secondment to the Greek Government, on ceasing to be attached to the Air Ministry (D.O.I.), 9/8; B. A. Playne, D.S.O., M.B., B.A., from R.A.F. Central Hospital to H.Q. (I.A.), 9/8. C. R. S. Bradley, O.B.E., from Half-pay List to H.Q., R.A.F. (Iraq), 28/7; G. C. St. P. de Dombasle, O.B.E., from No. 1 Group H.Q. to H.Q., R.A.F. (Iraq), 28/7; G. P. Grenfell, D.S.O., from R.A.F. Depot to Half-pay List, 1/8; K. G. Brooke, C.M.G., from Air Ministry (D. of E.) to H.Q. (I.A.), 4/8.

S/Ldrs. N. M. Martin, C.B.E., from C. and M. Party, Donibristle, to command No. 100 Squadron, 10/8; A. W. H. James, M.C., from R.A.F. Cadet College (Ground Wing) (Cranwell) to Half-pay List, 7/8; W. W. Shorten, R.C.S., from R.A.F. Depot H.Q. (I.A.) (Supernumerary), 14/8; H. J. F. Hunter, M.C., from R.A.F. Depot to No. to Group H.Q. for Personel Staff Duties, 19/9; W. A. S. Duck, O.B.E., from H.Q. (C.A.) to command R.A.F Central Hospital, 7/8; R. A. G. Elliott, M.B., B.A., from Central Medical Board to H.Q. (C.A.), 11/8; F. E. P. Barrington, from R.A.F. (Cadet) College (Flying Wing) to R.A.F. (Cadet) College (Ground Wing), 3/8; Paul Adams, O.B.E., from Air Ministry (D. of E.) to No. 4 Stores Depot, 8/8; W. R. Bruce, O.B.E., from No. 1 Group H.Q. to H.Q., R.A.F. (Iraq), 28/7.

F/Lts. H. Cockerell, O.B.E., from Iraq Group H.Q. (M.E.A.) to H.Q. (Iraq), 1/2; D. H. de Burgh, A.F.C., from Electrical and Wireless School to R.A.F. Depot (Supernumerary) whilst attending course of instruction at Cambridge University, 1/9; N. R. Fuller, from R.A.F. Depot to H.Q., R.A.F., Cranwell (Supernumerary), 26/7; R. Halley, D.F.C., A.F.C., from H.Q. (I.A.) to Half-pay List, 1/8; N. Keeble, D.S.C., D.F.C., from School of T.T. (Men) to R.A.F. College, 8/8. Substituted for the previous notification concerning this Officer. F. E. J. Coates, from Air Ministry (D. of E.) to No. 4 Stores Depot (Supernumerary), 14/8; G. C. Gardiner, D.F.C., from R.A.F. Depot to No. 7 Group H.Q. for Personel Staff Duties, 27/8; W. C. Clark, from School of T.T. (Men) to No. 12 Wing H.Q. (Ireland), 15/8; T. E. Drowley, from Air Ministry (D. of E.) to No. 4 Stores Depot, 1/9; A. L. Lingard, from R.A.F. Depot to the Packing Depot, 9/8; W. H. Oakey, from H.Q., R.A.F. (Ireland), to I.A.A.D. (Supernumerary), 4/8; J. W. Harper, M.D., from R.A.F. Depot to H.Q., R.A.F. (M.E.), 28/7; P. F. Fullard, D.S.O., M.C., A.F.C., from No. 12 Squadron (A. of Rhine) to No. 4 Squadron for duty as Adjutant, 29/7; J. S. Goggin, from R.A.F. Base, Leuchars, to R.A.F. Base, Gosport (Supernumerary), 1/9; H. M. Daniel, M.B., from No. 1 School of T.T. (Boys) (Halton) to R.A.F. Depot, 8/8; H. A. Tillman, M.D., from Research Laboratory and M.O.S. of I. to No. 1 School of T.T. (Boys) (Halton), 31/7.

The R.A.F. In India.

The *Daily Telegraph* of August 21st states that Air Vice-Marshal Sir John Salmond, who recently visited the North-West Frontier with General Sir Claude Jacob, Chief of the General Staff, is now at Simla writing his report, which will in the first place be submitted to the Commander-in-Chief, who will pass it on to the Government of India in order that it may be sent home. Sir John will leave Simla on September 7th for Mesopotamia, to take up the command of all troops in that country.

Interviewed by Reuter's correspondent, Sir John said he had had a most interesting tour of a month on the Frontier. He admitted that for a long time India had been woefully behind the times with regard to the equipment of its air force, and the position was still very bad, but stores and equipment had recently been arriving, and within a few months it was expected there would be about 70 active machines in the country.

He thought 100 active machines, with the necessary reserves, would meet the requirements of India on the Frontier. The present supply of bombs in India was ample.

In his opinion a well-equipped and efficient air force in the vicinity of the Frontier would be able to deal with recalcitrant tribes more effectively and more economically than the military forces had been able to do during the last 60 or 70 years.

In conclusion Sir John expressed much delight at the recent grant of £2,000,000 for the Air Force in England.

[One would point out that the 70 active service machines expected in a few months will all be war-time products, and therefore obsolete in design and performance. And yet those 70 old-fashioned aircraft will be able to do more to enforce peace on the Frontier than can be assured by the whole of the Indian Army. One can quite understand the objection of officers of the type of General Rawlinson to the growth in importance of the Air Force.—Ed.]

A Reprisal.

The *Times* correspondent at Simla, in a cable dated August 12th, states that as a reprisal for the attack on the Welch Fusiliers on July 29th, when two other ranks were killed, one died from wounds, and three were wounded by the Abdur Rahman Khel Mahsuds near Ladha, aeroplanes have bombed Baddar Toi, near Kanigoram.

A Transjordanian War.

It is reported that a large party of Wahabi raiders attacked the Beni Sakhr tribe near Amman in Transjordania, and killed 35 men, women and children. The report adds that the British Transjordanian Force drove off the raiders with aircraft and armoured cars, inflicting losses.

The R.A.F. in Transjordania consists of H.Q., a Flying Section, one section of No. 2 Armoured Car Co. and a Meteorological Station all situated at Amman under the command of Grp/Capt. Robert Gordon, C.B., C.M.G., D.S.O., who distinguished himself a year or two ago by settling in a few weeks the trouble in Somaliland which had been going on for fourteen years.

Anti-Aircraft Defence.

It is announced that Lieut.-Col. D. H. Gill, C.M.G., D.S.O., has been appointed Commander of the 2nd Anti-Aircraft Brigade (Territorial Army), and Colonel H. S. de Brett, C.B., C.M.G., D.S.O., Commander of the 3rd Anti-Aircraft Brigade (Territorial Army).

These are the two Brigades which are to be formed in London.

The *Times* states that Col. Gill joined the Royal Artillery from Woolwich in 1897. He was severely wounded in the South African War. He went to France in August, 1914, as a battery commander in the 4th Division and was promoted to command an Artillery Brigade and later the Anti-Aircraft of the first Army. Col. de Brett entered the Army from Woolwich in 1889, and won his D.S.O. in the North-West Frontier campaign of 1897-8. He also served in the South African War, in China (1900), and in Somaliland (1909). During the European War he served on the General Staff of the 28th and 3rd Divisions, and for a time in 1918 was Brigadier-General commanding the Heavy Artillery of the 3rd Corps in Mesopotamia.

Teaching the Young Idea.

The Public Schools Cadets Corps, lately camped at Tidworth, were given a demonstration of some of the uses of aircraft for military co-operation on August 3rd. The arrangements were carried out by Wing/Cmdr. E. L. Gossage, D.S.O., M.C., R.A.F., O.C. the School of Army Co-operation at Old Sarum. Demonstrations of the ground signal method of communicating with aircraft in flight by use of the well-known Popham "T," of the dropping of messages from an aeroplane by parachute, and of the picking up from the ground of an actual despatch were given. These are prac-

tised in case of the breakdown of wireless communication, or for use with troops not carrying wireless.

The demonstrations showed clearly how an aeroplane could be used to discover the position of advanced troops separated from the main body, the delivery to such troops of messages and even ammunition, and should prove to be of great educational value. The Cadets are understood to have taken a very keen and intelligent interest in these operations.

Inspector of Accidents.

Major J. P. C. Cooper, O.B.E., M.C., has been appointed Inspector of Accidents at the Air Ministry, under the Air Navigation (Investigation of Accidents) Regulations, 1922.

R.A.F. SPORTS AND PASTIMES.

Inter-Service Athletics.

The Army beat the R.A.F. at Aldershot on August 19th by 14 points to 16. The competition was on the relay principle, 4 taking part in each track event and 3 in each field event. The Air Force wins were as follows :—Cpl. Blythe, O/O. Bayes, AC. Down, and AC. Cassen won the quarter (four 110 yards) in 46 1-5 sec.; the half-mile relay, O/O. Bayes, AC. Cracknell, AC. Goodman, and Cpl. Blythe in 1 min. 33 2-5 secs.; the mile relay, F/O. Nagg, O/O. Bayes, Sjt. Rutley, and AC. Cracknell in 3 min. 38 sec; and the hurdles, AC. Slack, F/O. Baker, and F/O. Gardiner. The Army team were disqualified for knocking down three hurdles.

It is interesting to note that the Army won the high jump with 5 ft. 8 in. as their top jump, while at Henlow on July 19th F/Cdt. Nuttall jumped 6 ft. in the R.A.F. Championship. In the same way the best Army long jump was 20 ft. 11¼ in., and at Henlow AC. Slack jumped 22 ft. 5½ in.

Calshot.

Cricket.—Recently Calshot played the R.A.F., Lee-on-Solent, Calshot winning by 33 runs. F/O. Wigglesworth made 37 runs, and F/Lt. Worrall 14. For Lee-on-Solent, AC. Paine made 13. Bowling for Calshot F/O. Wigglesworth took 5 wickets for 16 runs, F/Lt. O'Brien 2 for 17, and F/Lt. Worrall 3 for 15. For Lee-on-Solent AC.1 Chadwick took 3 wickets for 19, and AC.1 McFarlane 6 for 44

More recently Calshot beat Fawley at Fawley by 106 runs to 72, F/O. Wigglesworth scoring 22 and taking 8 wickets for 21.

Uxbridge.

Cricket.—On August 2nd the Air Ministry played against the R.A.F. Depot at Uxbridge. The Air Ministry went in first and made 245, Hobbs making 96 not out and Hall 59. The Depot made 184 for 8 wickets, S/Ldr. Smart contributing 69.

R.A.F. Meditteranean,

The R.A.F. units in the Mediterranean are taking a prominent part in all forms of sport, as the following notes demonstrate.

Cross Country Running.—A five mile road race against the 1st Bn. Gordon Highlanders, was run on April 30th. The teams were of 30 a side and the event was won by the Gordons.

Racing.—In the Spring Meeting held on May 2nd and 5th, F/Lt. J. Maclean, D.S.C., won two races with his pony "Garryowen." S/Ldr. H. F. A. Gordon, O.B.E., rode two winners.

Horse Show.—May 7th. Mrs. C. R. Samson took 1st prize for Ladies' Hacks with her pony "Nadim" and also won the 1st prize in the Ladies' Driving Competition. S/Ldr. H. F. A. Gordon, O.B.E., was fourth in the Jumping Competition. Both the R.A.F. Polo Club's ponies, "Farnboro" and "Cranwell," were shown in the polo pony events, but were unplaced.

Gymkhana.—May 6th and 8th. Three R.A.F. ladies rode in the Ladies' 4-furlong Race and Mrs. Samson and Mrs. Maclean succeeded in reaching the final, in which Mrs. Samson ran second, being beaten by a short head. Air Commodore C. R. Samson's team won the first prize in the Relay Race.

Sports.—267 Squadron's Sports on May 11th proved a great success. The visitors included H.E. Field-Marshal Lord Plumer, G.C.B., G.C.M.G., G.C.V.O., and Lady Plumer. S/Ldr. P. A. Shepherd (O.C.) officiated as referee and Mrs. Shepherd presented the prizes.

The following is a list of the events and their winners :—

100 yards, F/O Wagner (11 1-5 sec.). High jump, AC 1 Phipps (4 ft. 9 in.). 220 yards, F/O Wagner (25 1-5 sec.). Half-mile, F/Lt. Sadler (2 min. 12 sec.). Throwing the cricket ball, F/O Wagner (112 yds.). 100 yards hurdles, F.O. Wagner (15 1-5 sec.). Long jump, F/O Wagner (17 ft. 3 in.). 440 yards, F/O Wagner (1 min. 3-5 sec.)

F/O. Wagner won the special cup for the champion athlete of the meeting.

Inter-Flight mile relay, "B" Flight (4 min. 12 sec.). Tug-of-war, 1st Gordon Highlanders beat 267 Sqdn. (2—nil). Squadron mile, F/Lt. Sadler (5 min. 10 sec.). Inter-Flight tug-of-war, "B" Flight. Aggregate Cup, "B" Flight (154 points).

Sack race, Sjt. Vella. 660 yards sealed handicap, Cpl. Beckett (1 min. 25 1-5 sec.). 150 yards handicap for Officers, N.O.'s and N.C.O.'s, S/M. Vassalo. Obstacle race, AC.1. Hill.

The sports were very well organised and were carried out without a hitch or any delay between events. In fact so good were the arrangements that everybody declared that the R.A.F. had shown an example of how to carry through a long programme without any tedious delays. The Veterans' Race provided a good field, including the Lieut.-Governor (who gained third prize), Col. Egan, R.A.O.C. (first prize), Col. Green of the Staff i/c Administration, Air Commodore Samson, S/Ldr. Shepherd, etc.

Polo.—The R.A.F. Club is going very strong, nine officers now playing regularly. The Club owns two first class ponies. On June 2nd a match was arranged against the 2nd Batt. Royal Sussex Regt. After a fast game the R.A.F. were defeated by 1 goal to nil. As a matter of fact they had the better of the game but suffered by being weak in front of the opposing goal. The R.A.F. team was composed as follows :—No. 1, S/Ldr. Shepherd; No. 2, F/Lt. Maclean; No. 3, S/Ldr. Gordon; Back, Air/Cmdr. Samson.

On June 5th, after a good game, a draw resulted in the match against the 1st Gordon Highlanders, each side scoring one goal. S/Ldr. Gordon scored for the R.A.F. from a difficult angle. The team was the same as turned out against the Sussex Regt.

Cricket.—On June 5th the R.A.F. beat H.M.S. *Marlborough* by 253 runs to 215. On June 8th they beat H.M.S. *Iron Duke* by 149 runs to 59, L/AC. Townsend taking 6 wickets for 23 runs. Against H.M.S. *Centurion* on June 7th the R.A.F. made 282 runs and H.M.S. *Centurion* 119 for 7 wickets. In this match F/O. Pennington batted well for 99 runs.

On June 10th the Royal Sussex were severely beaten by the R.A.F., who scored 334 runs for 7 wickets, the Royal Sussex being dismissed for 60 runs. F/O. Pennington made a fine 114 and F/O. Wagner 63 not out. L/AC. Townsend, bowling in fine form, took 7 wickets for 20 runs.

On June 29th the R.A.F. played H.M.S. *King George V.*, dismissing their team for 104. The R.A.F. then made 194 for 7 wickets, F/Lt. Rook contributing 108. On June 27th the R.A.F. played the 1st Batt. Gordon Highlanders. At the close of the game the R.A.F. score stood at 259 runs for 4 wickets and the Gordons were all out for 66 runs. L/AC. Townsend took 6 wickets for 22 runs.

The most outstanding victory was that against the Mediterranean Fleet on June 15th when the R.A.F. won by



THE R.A.F. MALTA.—Cricket First XI. Left to right standing: Cpl. Davy (umpire), L/AC. Townsend, L/AC. Golding, F/Lt. Bryant, F/Lt. Norton, F/O. Waring. Cpl. Gill, L/AC. Murphy (scorer). Seated: F/Lt Rook, F/O. Wagner, F/Lt. Stewart (Captain), F/O. Pennington, F/Lt. Elmhirst.

11 runs. The Squadron team is chosen from a total strength of 23 officers and 160 British other ranks. The Navy side is chosen from four battleships, four light cruisers, four destroyers, H.M.S. *Egmont* and the R.N. Hospital. The Navy won the toss and batted first. Their innings was closed at 14.50 hours for 269 runs. F/Lt. Bryant took 3 of their wickets for 73 runs and L/AC. Golding took 3 for 41 runs. The R.A.F. innings was remarkable for the even scoring, eight batsmen scoring more than 20. F/Lt. Rook scored 57, F/Lt. Norton 49, and L/AC. Townsend 35. The last batsman went in with 24 to make, but L/AC. Townsend played first class cricket and undoubtedly saved the match.

31 and 228 Squadrons, Parachinar.

Association Football.—On July 1st on the City ground, No. 28 Sqdn. beat the Royal Ghurkas by 5 goals to 2 after a strenuous game. The Ghurkas had the best of the game in the beginning, and at half-time were leading by 2 to 1. In the second half they fell to pieces, and L/AC. Durham and AC.s Wolfson and Willers (2) scored without any reply from them.

On July 3rd No. 28 Sqdn. and No. 31 Sqdn. met, the game resulting in a draw of one goal each. AC. Willers played well, opening up the game and scoring the first goal.

On July 11th 28 Sqdn. beat "G" Signals R.E. easily by 4 goals to 1. The R.A.F. defence was particularly good, L/AC. Jones in goal bringing off some smart saves.

On the 15th 28 Sqdn. registered another win, this time by 1 goal to nil against "D" Co. the Border Regt.

Hockey is "off" for the time being as the ground is under repair.

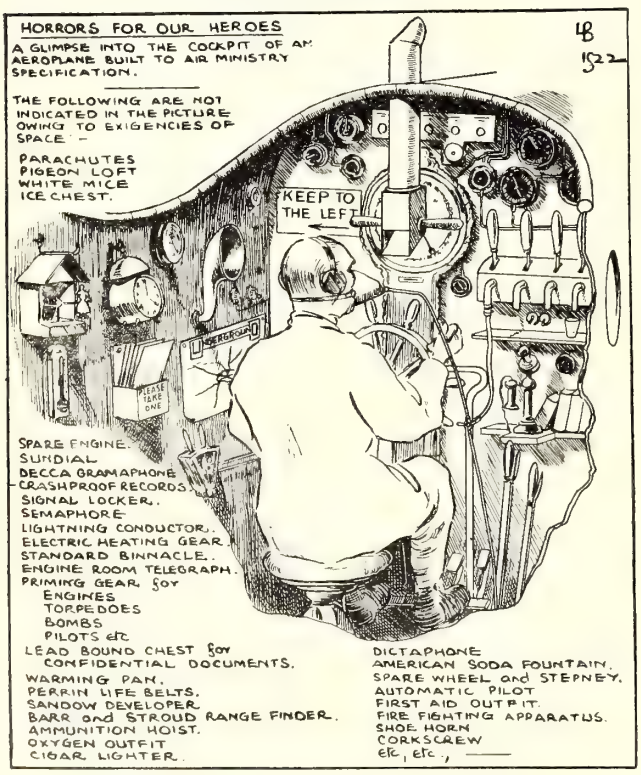
28 Squadron Reunion.

The half-annual function arranged by 28 Sqdn. Old Boys' Association was held at Eustace Miles' Restaurant, Chandos Street, Charing Cross, W.C.2, some time back.

In accordance with precedent ladies attended and the total muster was something in excess of 70. General greetings resulted in slight delay before the organised business could be opened; but the whist tables were in full working order soon after 7 o'clock. One noticed many of the Old Stalwarts—Posner, Lawrence, Jimmy Howes, Rainbow, Kerry, W. Williams, Hearn, Pat Partridge, Woodbridge, W. Corner, Weatherby, S. Bennett. The short whist drive finished soon after 8 o'clock, and the first dance served as a fitting prelude to the refreshments' interval. Internally refreshed, the company settled heartily into the remaining part of the programme, dances being interspersed with concert items. H. V. Bailey, who had travelled from Cardiff, received a prize for the visitor from the farthest distance.

The usual Annual Reunion will be held in the autumn and details will be circulated in the usual way. Meanwhile past or present members of the 28th who have not been in touch with the Secretary (Mr. C. T. Hodges) are requested to write to him at 102, Camden Street, N.W.1.

"THIS FREEDOM."



A Suggestion to the Technical Department.

THE IRISH FREE STATE WAR.

It was reported from Belfast on August 17th that previous to an attack on Dundalk by the National forces aeroplanes belonging to the Irish Free State flew over Dundalk warning its inhabitants of the attack.

THE COUPE DEUTSCH.

The following is the final entry for the race for Coupe Henry Deutsch de la Meurthe. The race is to take place at Etampes on Saturday, September 30th, and *not* on September 22nd as officially stated by the Royal Aero Club.

France: Casale on Casale-Blériot (Lorraine 400 h.p.), entered by Casale. Lasne or Berthelin or Sadi Lecomte on a Nieuport Delage biplane and two Nieuport-Delage "Sesquiplans" (all with 320 h.p. Hispano engines), entered by the Soc. Nieuport Astra. Madon or Canivet on a Simplex monoplane Madon type (320 Hispano), entered by Soc. Simplex-Madon. Nungesser on a Nungesser, entered by Nungesser. Presumably there will be eliminatory trials to decide which will be France's three representatives.

Great Britain will be represented by Mr. J. H. James on the Gloucestershire Aircraft Company's "Bamel" (with 450 h.p. Napier engine). The Bristol monoplane has not been entered and presumably will not be.

Italy is represented by a Fiat (with 700 h.p. Fiat engine). No pilot has so far been nominated.

THE FIRST THOUSAND.

For the first time in history more than a thousand people have crossed the Channel by air in one week. The total number of passenger and crew of the Continental machines from August 14th-20th was 1,076, of whom 734 were paying passengers, the remainder being crew.

These people were carried in 209 machines and it is the first time also that more than 200 cross-Channel trips have been made in one week.

Of these numbers 137 British machines carried 620 passengers against 72 foreign machines which carried 114 passengers.

It will thus be seen that aerial transport is definitely making an inroad into ground transport as the number of passengers represents at any rate the load of one cross-Channel boat in each direction full of first-class passengers.

MOVEMENTS IN JAPAN.

Correspondents in British Columbia and Japan state that Capt. F. C. Broome, D.F.C., A.F.C., and another Vickers representative have recently been to Japan *via* Canada and that Capt. Broome is now on his way back from Japan. Evidently their visit is in connection with Vickers "Viking" amphibians, which certainly ought to appeal to the Japanese Naval Air Service.

It is also reported that Major Orde Lees, who went to Japan to demonstrate the Calthrop Parachute and did a vast amount of parachute jumping in that country chiefly from Avros piloted by Major F. B. Fowler, is remaining in Japan and is joining the staff of the Peers' College as instructor in English.

A GOOD EFFORT.

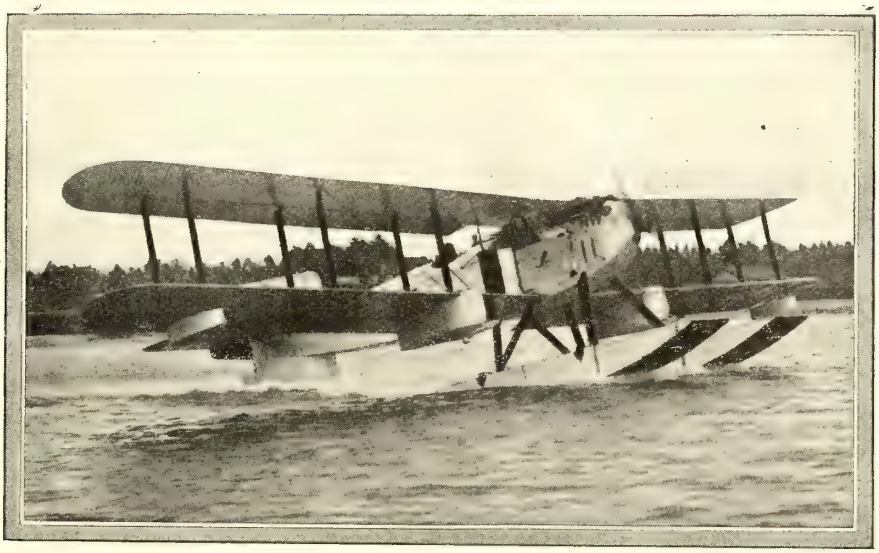
His many friends in the R.A.F. and the Aircraft Industry will be interested to hear that Major H. G. Brackley, D.S.O., D.S.C., who went to Japan with the Mission to the Japanese Navy organised by Colonel the Master of Sempill, has recently been responsible for an extremely fine flight by Japanese naval aircraft. Three F.5 boats, Rolls-Royce engines, one piloted by Major Brackley and the other two by Japanese pilots, made a tour almost round the main Japanese island on which Tokio and Yokohama are situated. The total distance covered was over 2,000 miles, and this was accomplished without any trouble except that one airscrew of one boat was damaged while changing moorings when a storm got up one night. The boats visited the chief ports round the coast and when not actually flying spent all their time in the water, so that altogether the performance was fine testimony not only to the sea-worthiness of the British aircraft, but also to the efficiency of Major Brackley's training.

AIRCRAFT FOR POLAR EXPLORATION.

Major Carr, who accompanied the Shackleton-Rowett expedition on the *Quest*, and who was to have flown the Avro seaplane built for that expedition, has now returned to London. He did The Aeroplane the honour of calling at the editorial offices, and expressed certain very interesting views as to the possibilities of aircraft for Polar exploration. Owing to the fact that Sir Ernest Shackleton changed his plans and did not call at Cape Town—where the Baby Avro was to have been embarked—no actual flying took place.

The *Quest* reached 69 deg. 18 sec. south, where she was blocked by ice. No land was then in sight, but rapid shoaling of the water indicated that the Antarctic Continent was being approached. In this latitude, Major Carr states that

ACROSS THE SOUTH ATLANTIC



FAIREY SERIES III LOAD CARRYING SEAPLANE
fitted with a 360 h.p. Eagle VIII Rolls-Royce Engine.

THE FIRST TRANSATLANTIC FLIGHT from East to West was accomplished by Com. Sacadura Cabral and Capt. Gago Coutinho on a

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carrying **3,100 lbs. of useful load with one 360 h.p. engine.**
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Speed with full load, **83** knots. Landing speed with full load, **43** knots.

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the average temperature was about 15 deg., the average wind 8 to 10 m.p.h., and the air and sky were wonderfully clear. There was ample open water to have taken the machine off, and as the range of visibility from 8,000 ft. would have been something like 140 miles, he has no doubt that he would have been able to sight land, and probably to reach and photograph it.

Quite apart from this particular work, the seaplane would have saved much time in getting through the pack ice by reconnoitring and directing the ship. Also survey work over South Georgia could have been carried out. There would have been no difficulties whatever about flying under the conditions encountered, and Major Carr has records of over 300 hours of perfect flying weather.

He expresses the opinion that future Polar exploration will be carried out by the use of aircraft in summer, and that practically the whole of the danger and discomfort of present methods will thereby be entirely avoided.

For any future work of this type he recommends a machine which can be fitted alternatively with either floats or skis, so that it may use either open water or snow-covered ice.

A CHINESE SCHOOL IN VANCOUVER.

Vancouver papers relate that a Chinese Commercial Flying School is now in full swing at the British Naval Station at Esquimault, on Vancouver Island. The school was founded by two Chinese, Messrs. Chan Dan and Lee Wong Yee, both of Vancouver, and that a Mr. G. B. Simon is the manager. Mr W. H. Brown, M.C., formerly of the Canadian Air Force Station at Jericho Beach Station, British Columbia, has left the Canadian Government Service to become instructor.

The school equipment to begin with consisted of an 80 h.p. Curtiss biplane fitted with a Hoffar pontoon, whatever that may be, and used as a seaplane. It is also fitted with dual control. One does not imagine that the speed of such a machine would be dangerous for pupils. The Vancouver paper thoughtfully mentions that flying is carried out from 06.30 until 10.30, when the air becomes too unsteady for further tuition. With such an aeroplane this seems wise. Apparently there were eight pupils under tuition when the report of the school was published.

The same paper reports that Mr. E. G. Fullerton, also of the Jericho Beach Air Station, was to pilot Capt. Amundsen in his projected aeroplane flight across the North Pole, which flight, according to other reports, has now been washed out. One confesses that it is difficult to understand why pilots in the Canadian Government Air Service, which certainly seems to have the greatest future of any Air Service except the Royal Air Force, should leave it in order to take part in ventures which are obviously less promising.



A NOVEL OUTLOOK.—A view taken by Mr. Thomas, of "The Motor," of a Grand Prix corner from Mr. Raynham's aeroplane on his recent visit to France. The machine is on a vertical bank, the photograph is taken along the planes.

SUPEROPTIMISM.

Rear-Admiral Bradley A. Fiske, late U.S. Navy, who is apositely called "Friske" by the *Morning Post* and who is described as "a well-known American naval authority," has recently launched another of those wonderful schemes for which he has been famous since he began to connect himself with aviation. The scheme is for a race round the world on seaplanes, and the gallant Admiral is optimistic enough to suggest that manufacturers all over the world should design and build, especially for this race, seaplanes each to carry at least 100 passengers. In view of the commercial value of such a seaplane when built and the previous instability of Rear-Admiral Fiske's schemes, manufacturers will probably feel inclined to say, in the words to the historical fisherman, "Come inside'

Quite what is the underlying truth behind this story is not yet known. Rear-Admiral Bradley Fiske possesses both imagination and initiative and is a believer in the value of aircraft for both military and civilian purposes.

A seaplane is obviously the most suitable type of heavier than air machine for circumnavigatory efforts, and the development of really large seaplanes capable of such flights would undoubtedly help greatly in the development of real commercial aviation.

But one may properly ask to see a 100 passenger seaplane fly before considering it as a round the world vehicle.

"THE POWER OF A HORSE."

The following note appeared in the *Daily Mail* on 19th inst. Of course one expects no better of that paper, but the *Evening News*, which is considered by many to be only second to THE AEROPLANE in the quality, quantity and accuracy of its aeronautical news, also reproduced it:—

"Dr. Junker, the German aircraft designer, has produced an all-metal cantilever-wing monoplane which carries nine passengers. Its 180 h.p. engine is stated to be equal in performance to the latest 450 h.p. British engine as used in Royal Air Force bombing machines."

Surely attention should be drawn to these 180 h.p. engines which give 450 h.p., and one wonders whether the power of the English horse is going down out of sympathy or antagonism with the German mark. Or are the deceitful Germans building huge engines and rating them on the "take away the number you first thought of" principle?—

G. D.

AIRCRAFT IN PARLIAMENT

FLYING BOATS:—Replying to VISCOUNT CURZON, CAPT. GUEST said that by the term "flying warship" he assumed the Noble Lord had in mind a flying boat hull which is under construction. The construction of this hull is simply one stage in the gradual development of the policy which has been frequently thought out and discussed with the Admiralty of producing flying boats which can carry out a prolonged cruise. It is the duty of the Air Ministry to arrange for the construction of such experimental boats as are necessary for this development, and it is for this purpose that the hull referred to has been produced. There is no lack of co-operation with the Admiralty in this matter.

[As a matter of fact the boat in question is smaller than the Fairey N.4. and the Vickers "Valentia."—Ed.]

NAVAL OFFICERS:—The PARLIAMENTARY SECRETARY TO THE ADMIRALTY in reply to a question by VISCOUNT CURZON said that under the scheme of attachment to the R.A.F. promulgated in Admiralty Fleet Order 2011 (a) of 1920, Naval officers were graded as flying officers on joining, but if they held rank in the Royal Navy higher than sub-lieutenant, they were granted honorary rank in the R.A.F. equivalent to their naval rank. During their service in the R.A.F. they carry the rank, pay and authority of their substantive Air Force grading for all Air Force purposes. They are eligible for substantive promotion to flight lieutenant, by selection in vacancies after qualifying as pilots. R.A.F. uniform is worn in the case of Service dress and in the case of full dress and mess dress, naval uniform. The Air Ministry attach considerable importance to the officers wearing the Service dress of the R.A.F. In addition to the seven officers attached in 1920, a scheme for attaching a further number in 1921 fell through on account of the revised conditions which the Admiralty thought necessary to make being unacceptable to the Air Ministry. No other officers are now attached, lent or seconded, as, although officers undergoing courses as observers carry out the greater part of their training with the R.A.F., they remain under naval conditions throughout.

In a written answer to a question by MAJOR WHELER, on August 4th, THE SECRETARY OF STATE FOR AIR said:—"In granting any short service commissions to provide for the increase in the size of the R.A.F., recently approved by the Government, special consideration will be given to applications from young officers who have been retired from the Navy or Army under the reduction schemes of those Services. I hope also that it may be possible to arrange with the Admiralty and the War Office for a considerable number of serving officers of the Navy and Army to be seconded to the R.A.F., thus avoiding the immediate cost to the Crown necessitated by the premature retirement of a corresponding number of naval and military officers."

NAPIER

The *Proved* Best

Secures the International Flying Boat Trophy for Great Britain.

A NAPIER engined Supermarine Flying Boat, piloted by Mr. H. C. Biard, on August 12th regained for Great Britain the Schneider Cup—open to all flying boats.

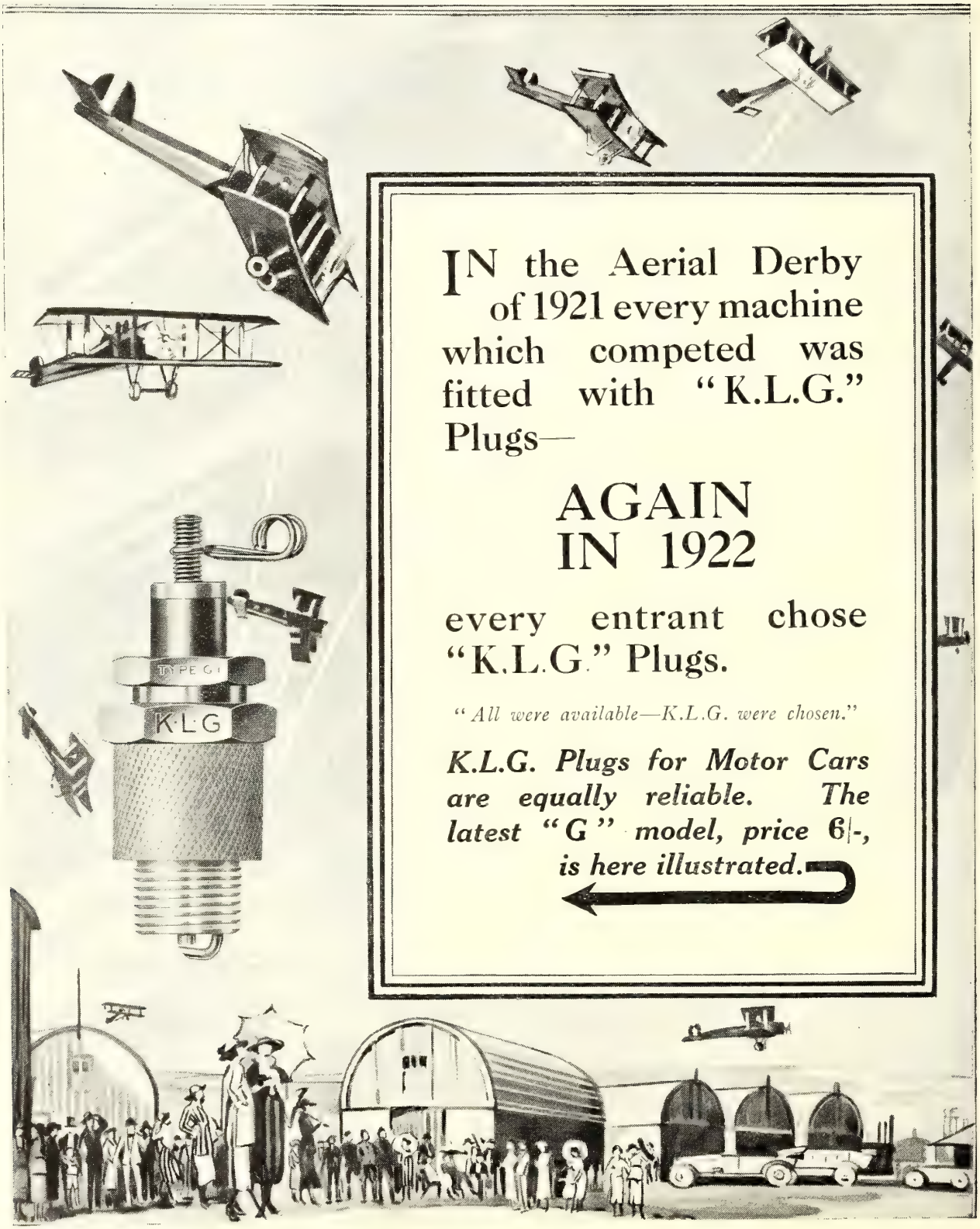
In one week machines fitted with the Napier aero engine have won the Aerial Derby for land machines (Napier-Gloucestershire, piloted by Mr. J. H. James) and the Schneider Cup for flying boats against all comers.

Each event further proves the superiority of the NAPIER aero engine over all other engines in the world.

The 40/50 h.p. Six Cylinder Napier motor carriage is as reliable and satisfactory on the road as the 450 h.p. Napier aero engine is in the air.

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K·L·G SPARKING PLUGS
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IN the Aerial Derby of 1921 every machine which competed was fitted with "K.L.G." Plugs—

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K.L.G. Plugs for Motor Cars are equally reliable. The latest "G" model, price 6/-, is here illustrated.

AERONAUTICAL ENGINEERING

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INCORPORATING AIRCRAFT ENGINEERING AERODYNAMICS, AIRCRAFT FINANCE AND COMMERCIAL AERONAUTICS AND MATTERS PERTAINING TO THE AERONAUTICAL ENGINEER AND THE AIRCRAFT TRADER.

THE WEEKLY COMMENTARY.

Admiral Sir Percy Scott and others of like mentality have long made it plain that there is no necessary connection between their Naval experience and a real comprehension of the functions of sea-power.

Commander Burney, who has Naval experience and is also deeply interested in the development of Air Power, has—if one may judge from a recently published article signed by him—made an attempt to arrive at some clear definition of the duties of a Navy, in order that the case in favour of Aircraft as against surface ships for Naval purposes may be made plain.

Unfortunately he seems to have become somewhat confused in thought, in this important matter, and it has been thought advisable to discuss his arguments with a view to clarifying this important subject.

An illustrated note concerns the activities of the Blackburn Aeroplane and Motor Co. in the development of torpedo-carrying aircraft. Britain is the home of torpedo-carrying aeroplanes, and the orders received from foreign Powers for Blackburn torpedo-carriers is evidence that the value of our experience in this direction is recognised abroad.

A brief record of the flights made at the French gliding contest during the past week seems to confirm the German claim as to the very great importance of experience on the part of the pilot if any great results are to be obtained. The maximum length of flight made at the Puy de Combergrasse during the first nine days was under three minutes, whereas in the Rhön competitions much greater results have been obtained.

AIRSHIPS, AEROPLANES, AND THE NAVY.

In the *Daily Telegraph* of August 8th there appeared a distinctly interesting article by Commander C. D. Burney, C.M.G., dealing with the airship in its relation to Naval Power and National Defence. Commander Burney is not among that class of enthusiasts who believe that we can now replace battleships by aircraft and very emphatically he is not of those who consider that the battleship may laugh at aircraft development.

Commander Burney begins by discussing the objects of the British Navy. According to him these are (1) to secure the seas for the transport of British merchandise, troops, etc., and (2) to deny the use of the sea to the ships of the enemy. According to him the Navy does not exist for the purpose of fighting—that is merely one method by which it may have to attain its object.

If it can be shown that these objects can be achieved without a floating Navy, then the *raison d'être* of the Navy, and with it of the battleship, disappears.

"The Greatest Potential Striking Force."

The writer then states that the greatest potential air striking force consists of the largest possible airship carrying aeroplanes armed with bombs, torpedoes, and poison gas. He claims that 16 airships, each of 5,000,000 cub. ft., each carrying three fighting and two bombing or torpedo aeroplanes, could be built at the cost of one battleship. The range of action and the capacity for withstanding rough weather of the airships would equal that of the battleship, and obviously their speed would be much greater. Such a squadron would, he suggests, be a serious menace to the battleship—and as the battleship requires an attendant screen of light cruisers, destroyers, etc., the real cost would be much less than that of the surface capital ship.

He does not suggest that the time is yet ripe to replace the battleship by such a fleet. He obviously contemplates a future in which the battleship will become useless in the face of such aerial capital ships, but even so he evidently contemplates the existence of "floating craft which will perform the duties of boarding vessels, carrying prize crews, anti-submarine duties and the like" which "will rest on the power of the airship in place of the power of the battleship."

An Inconsistency.

Now there is here an evident inconsistency. If it is not the object of the Navy and therefore of the battleship to fight, then even convincing proof that the airship can successfully fight the battleship is not proof that the airship can replace the battleship. On his own showing Commander Burney has to show further reasons for the faith that is in him.

As a matter of fact, his distinction between the objects of the Navy and fighting as one of the means of attaining those objects has a foundation, but is by him erroneously stated. The fact is that the objects of a Nation at war are (1) to secure to itself the utmost possible freedom of action: (2) to deny to the enemy, so far as is possible, any freedom whatever.

The Navy's Real Object.

The objects he ascribes to the Navy are merely one section of the general objects of the Nation. The object of the Navy—as of every other armed force—is to fight when necessary to attain those national objects. If one could rely on the enemy opposing no resistance to our efforts to secure the national objects, there would be no need for Navy, Army, or Air Force, and the national will could be imposed efficiently and effectively by civilian contracting organisations.

The argument as to the airship's potential capacity to defeat the battleship is therefore relevant, and it is difficult to understand why Commander Burney enunciated the distinction between the object of fighting, and the fighting itself. As it stands, it weakens his argument unnecessarily.

But even granted that the airship can defeat the battleship, the case for the abolition of the latter is far from being proved. Initially, he has to prove that in addition it can defeat every other enemy which the battleship can also defeat. It is not necessarily true that the one proof includes the other, though generally speaking one may expect it to do so.

And even then more remains. If the airship can defeat the battleship, before it can take its place the airship must also be able to meet enemy airships. Now the method of attack which will succeed against a battleship is very unlikely to be equally efficient against another airship. Quite different armament and equipment will be necessary for attack on the two types of enemy craft.

Consequently, an air fleet which may have to attack both surface battleships and an opposing air fleet will be handicapped by the necessity for a compromise between the two forms of equipment. Such an air fleet would be at the mercy of an equal opposing air fleet equipped only for attack on other aircraft and not burdened by armament for attack on surface ships.

Why the Navy is Indispensable.

Suppose Britain decides to scrap battleships and substitute some form of air capital ships. Are those aircraft to be armed to attack possible surface enemies? If so they may be defeated in the air by an air fleet designed solely for attack on aircraft, leaving to any enemy surface fleet the effective command of the sea. Obviously if they are armed only to attack enemy aircraft, they will not be effective against enemy capital ships, which would again command

the sea. The solution of this problem is obvious. We must have a strong surface Navy quite independently of the capabilities of our air fleet—if only to present to our enemies precisely the same dilemma as would be presented to us were we to abandon the Navy.

All of which does not affect the essential of Commander Burney's plea for the development of Air Power. One has very grave doubts as to whether his scheme of aeroplane-carrying airships is ever likely to become of serious fighting value. The airship is, and must continue to be, the most vulnerable type of aircraft to attack either from the surface or from other aircraft. The essence of the capital ship whether it be a surface or an air craft is that it shall combine as far as possible invulnerability with great offensive power.

The latter the airship may conceivably develop—the former one must doubt. And therefore it is difficult to see the aeroplane-carrying airship in any rôle more important than that of the super-light-cruiser of the future—a sort of aerial *Glorious* or *Courageous*, capable of hitting extremely hard and extremely suddenly, but scarcely able to hold a place in the line in a general fleet action.

In any case the airship of 5,000,000 cub. ft. does not yet exist, let alone as an aeroplane carrier. It may in the future serve in a very useful rôle as a war auxiliary to the aeroplane. In any case there is a very great need for the practical development of airships, and there does not seem to be any doubt whatever that the quickest and cheapest method of developing airships will be to use them for long distance mail and passenger communications.

Therefore, without necessarily agreeing with Commander Burney's parallel between the British mercantile marine as the root of the British Navy, and the rôle which a commercial air service may be expected to play in the development of British Air Power, one may wish him every success in his efforts to get an Imperial Airship Service into operation in the near future.—W. H. S.

THE KING'S CUP.

There appears to be a certain amount of ground for criticism as to the manner in which the Royal Aero Club have arranged the regulations regarding the forthcoming race for the King's Cup.

Some appreciable time before any regulations were drawn up a number of aircraft firms were asked whether they would undertake to enter machines for the contest. They were told merely that it would be a handicap race, and that machines of any type could compete on reasonable terms. In certain cases, firms so approached had to decide immediately what type should be entered, as having no complete machine in stock the problem of deciding what to put in hand or what could most certainly be completed in time became a governing factor. At least one firm decided to enter a then incomplete single-seater.

When the regulations were published it was found that the only repairs or overhauls permitted *en route* are to be carried out by the crew, with tools and spares carried on the machine.

Now the pilot in this race will have a fairly busy time. He will have other matters than the care of his engine to attend to at stopping places. And by the regulations no one but himself can touch either machine or engine of the single-seater.

Any two or more seater can carry one or more mechanics who will be free to give any attention considered necessary or desirable at the stopping places. Thus the single-seater is definitely handicapped in this respect.

It is argued that engine and machine should be good for 800 miles without attention. Possibly so, but then why not prohibit any attention to any machine during the race? Obviously such attention may enable a machine to win the race which would otherwise never have completed the course. The particular regulation does handicap the single-seater unduly, and the handicap should be removed by amending the regulation.

The simplest and most satisfactory methods would be to enact either that only repairs and overhauls made by the pilot himself shall be allowed, or that the machine shall not be overhauled at all.—W. H. S.

SOME AERONAUTICAL RESEARCH COMMITTEE REPORTS.

There have been received from the Controller of H.M. Stationery Office a number of recent reports issued by the Aeronautical Research Committee. These reports cannot possibly be abstracted or adequately reviewed in the space available in this paper, but for the information of those who may be interested a list of these reports, together with a note as to their scope, is given hereafter.

All or any of the reports may be obtained through any stationer or bookseller, or direct from H.M. Stationery Office, Imperial House, Kingsway London, W.C.2, upon remittance of the post free price. The reports should be ordered as "Aeronautical Research Committee Report R. and M. (or I.C.E.) No. ——."

R. and M. 681. A consideration of airscrew theory in the light of data from an experimental investigation of the distribution over pressure over the entire surface of an airscrew blade. By A. Fage and R. G. Howard. Price 3s., post free 3s. 2½d.

Gives the result of pressure plottings over the blade of a model airscrew, and of aerodynamical measurements upon a fixed aerofoil of similar shape and section, but without twist, and on the median sections of square ended aerofoils of sections similar to those used in the blades. These results are followed by a general discussion of airscrew theory in the light of the data obtained. The conclusion is reached that the aerodynamic performance of an airscrew blade element differs appreciably from that of an aerofoil with square ends.

R. and M. 689. The canonical forms of the equations of motion in still and gusty air. By Prof. G. H. Bryan, F.R.S. Price 9d. net, post free 10½d.

This report may be regarded as an extension of Prof. Bryan's earlier well-known work on Aeroplane Stability. In it the equations applicable to the oscillations of an aeroplane in the case where the velocity of translation of the aeroplane may vary both in magnitude and direction are undeveloped.

R. and M. 692 Notes on French and Italian aeronautical practice with particular regard to airships. By I. R. Pannell. Price 2s. 6d. net, 2s. 7½d. post free.

A record of things seen in the course of a visit to certain aeronautical establishments in France and Italy, and of information obtained from certain American companions on that tour. Gives details of aerodynamical laboratories and of certain characteristics of French, Italian and American airships.

R. and M. 752. Some applications of the Vortex theory of aerofoils. By H. Glauert. Price 9d. net, 10½d. post free.

Examination of the agreement between the flow pattern round an aerofoil assumed in the Prandtl theory and experimental results. It is concluded that the theory gives a reasonable estimate of the flow.

R. and M. 761. Experimental determination of tail plane characteristics. By H. Glauert and I. L. Peatfield. Price 9d. net, 10½d. post free.

Accounts of tests, both full size and model, made on the tail planes of S.E.5a and S.E.5e aeroplanes at the Royal Aircraft Establishment. Devoted to an exploration of the reasons for the loss of efficiency found when a tail plane on an aeroplane is compared to the tail plane tested alone. The loss is attributed to wing and body interference and to the effect of gap between tail plane and elevators.

R. and M. 767. The calculation of the characteristics of tapered wings. By H. Glauert. Price 3d. net, 3½d. post free.

Application of Prandtl's Vortex theory to the estimation of the performance of a wing of variable section, chord and incidence. As with R. and M. 752, reference is made to an account of this theory (R. and M. 723), which does not appear to have yet been published.

I.C.E. No. 14. An investigation of certain spark gaps for magnetos. By C. Paterson and N. R. Campbell. Price 6d. net, 6½d. post free.

Report to the Internal Combustion Engine Sub-Committee. Describes tests of the variation of sparking voltage of certain cylindrical spark gaps with variation in wave form of applied voltage, with change in atmospheric pressure, the effect of slight eccentricity of the central electrode, and of continued sparking in an enclosed space. Gives particulars of precautions to ensure constancy of gaps of this type.

I.C.E. No. 19. The relationship between air temperature and the power of a petrol engine. By A. H. Gibson, D.Sc. Price 4d. net, 4½d. post free.

Results of tests made on a single cylinder engine at Farnborough with a range of temperature of the inlet air of from 2 degrees C. to 82 degrees C. Additional tests on a 12-cylinder R.A.F. engine and on a 160 h.p. Lorraine Dietrich engine are also available for comparison. The results indicate that the power developed is sensibly proportional to the absolute temperature in the induction pipe.

I.C.E. No. 21. On the synchronism of the spark of a magneto as affected by the method of coupling. By G. E. Bairsto.

Describes variation with speed of engine in the timing of the spark with various types of flexible and rigid magneto couplings.

VICKERS
LIMITED

Brief Specification:
"Viking" Mark IV.
6 Passengers and Baggage, or 1,360 lbs. Freight.
RANGE: 340 miles. SPAN: 50 ft. HEIGHT: 15 ft. 1 in. LENGTH: 35 ft.

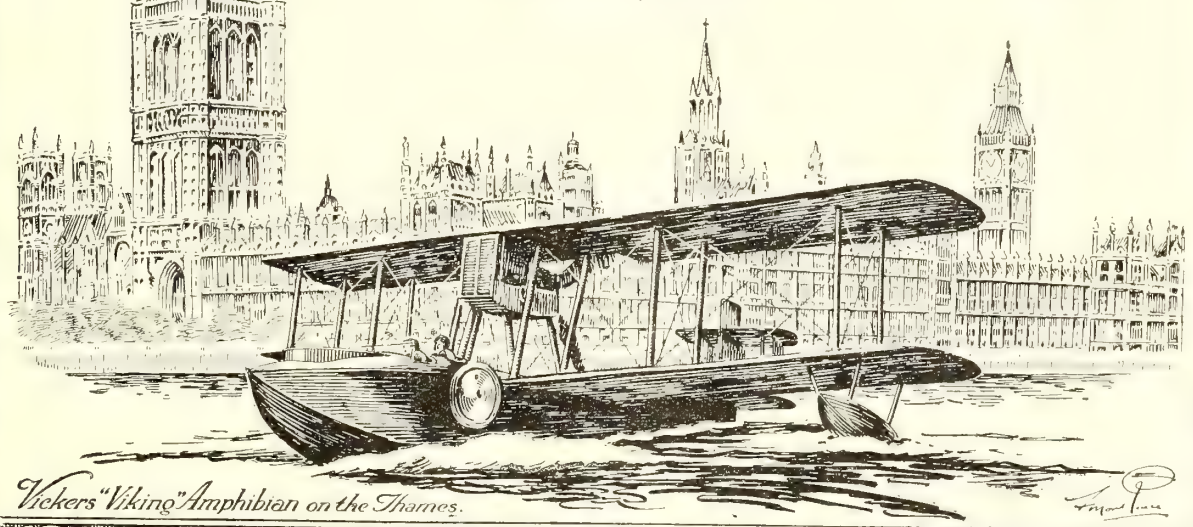
The Vickers "Viking" was the winner of the FIRST prize of £10,000 for the Amphibian Class of Aircraft entered for the BRITISH AIR MINISTRY COMPETITION, September, 1920.

The Vickers "Viking" was classified FIRST in the following competitions at the INTERNATIONAL SEAPLANE COMPETITIONS at ANTWERP, July, 1920.
1. Shortest time in "unsticking" from water. 2. Fastest time over a given circuit. 3. Climb to 1,000 metres. 4. Altitude with full load.

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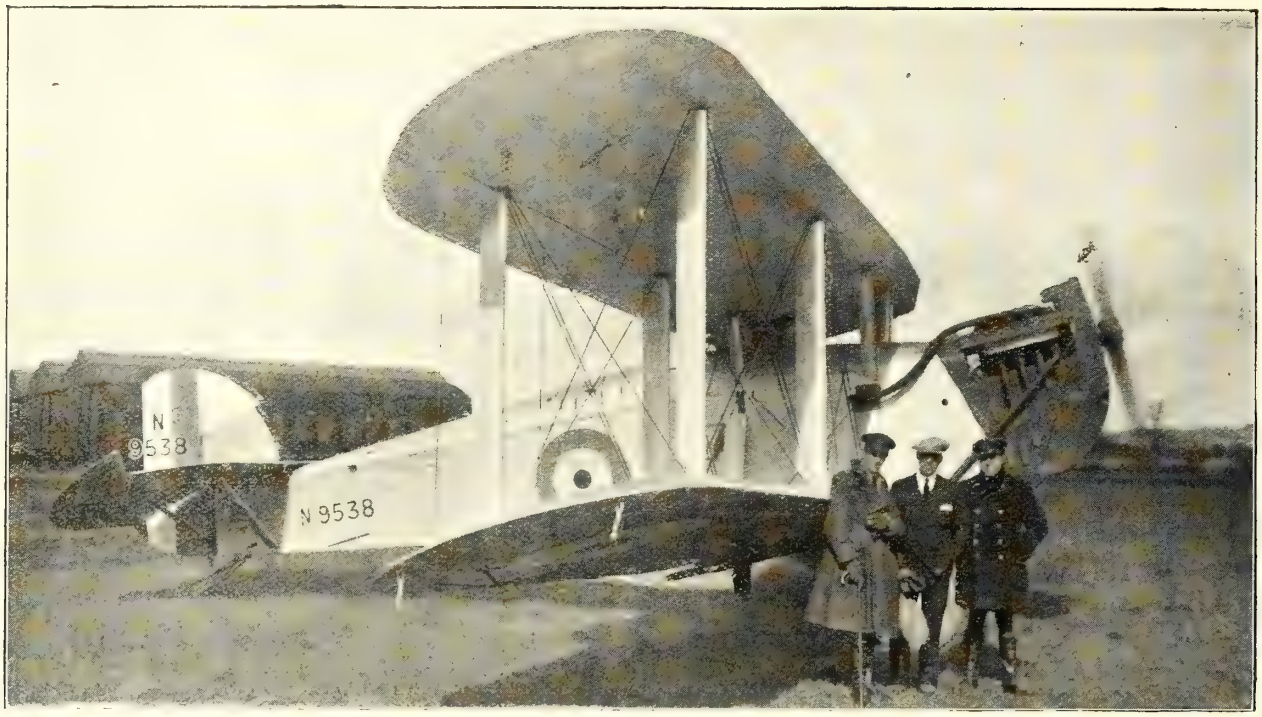
Aviation Department:
Vickers House, Broadway,
LONDON, S.W.1.

Telephone: Victoria 6900.
Telegrams: "Vickers, Vic. London."



Vickers "Viking" Amphibian on the Thames.

BLACKBURN TORPEDO CARRIERS.



The Blackburn "Dart" (450 h.p. Napier), one of the R.A.F.'s most modern torpedo carriers.

The Blackburn Aeroplane and Motor Co., Ltd., have, as is now well known, devoted very special attention to the development of aeroplanes for torpedo-carrying purposes, and have done a large amount of very valuable experimental work for the R.A.F. in connection with this particular class of aircraft.

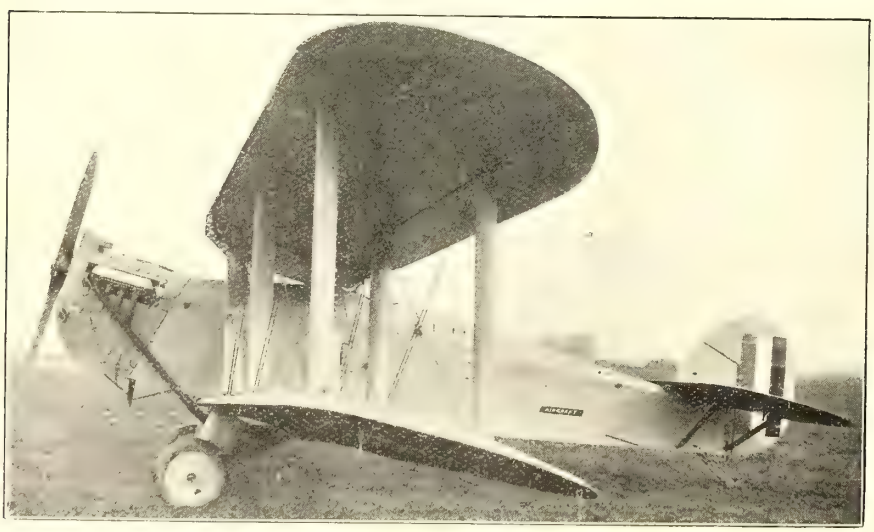
At the Aero Show at Olympia in July, 1920, the firm exhibited the "Swift" designed for the British Air Ministry. Although exhibited, very little information was allowed to be published and all data as to performance, etc., was very carefully withheld.

Since that date, however, the "Swift" has been modified in certain details, rechristened the "Dart," and this new edition which is being supplied to the Air Ministry has now to be shrouded in the same veil of semi-secrecy that before enwrapped the "Swift." One is permitted to publish external photographs and to state that the machine is driven by a Napier "Lion" engine—but no more. So much as is permitted is herewith accomplished.

The original "Swift" type, however, is by no means dead. The photographs of both "Dart" and "Swift" here produced indicate that there can be no large difference in the characteristics of the machines as aeroplanes, and that if the "Dart" is good enough for the R.A.F. the "Swift" is good enough for most services.

Evidently others think so also. At any rate the Blackburn firm have been able to sell examples of this type to the Air Services of several other Powers, notably to the U.S. Navy and to Japan. The two photographs of the "Swift" which are reproduced at the bottom of this page bear the U.S. identification marks, which seems adequate evidence of their ultimate destination. And very naturally as the machines are bought solely to serve Foreign Powers details of the machines are available to the world at large. This has been the case for some time, and the Blackburn "Swift" has already been described in The Aeroplane in considerable detail. A brief specification of the type is however repeated here.

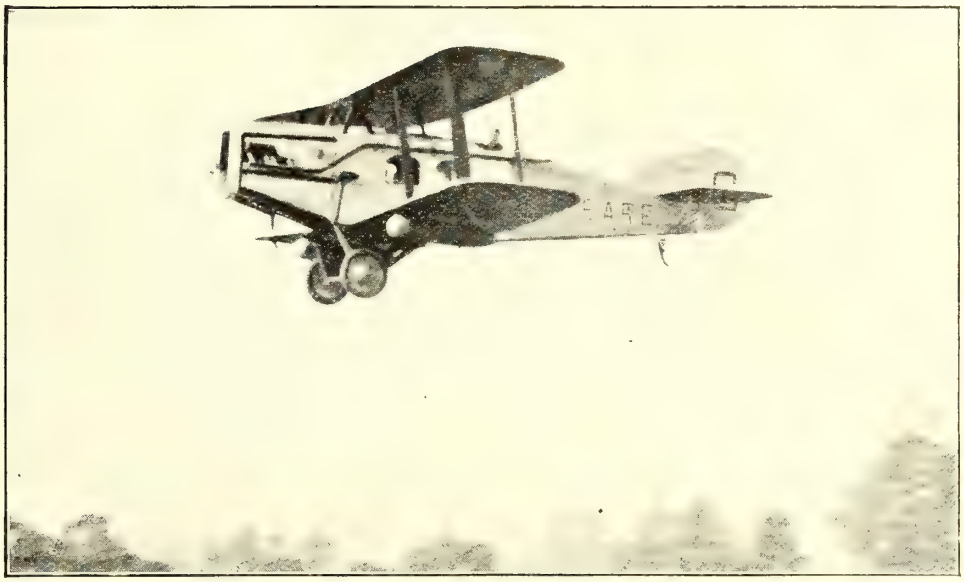




It is a most excellent sign that really modern British aircraft should thus be sold to Foreign Powers. In a case of this kind quite possibly the machines are bought solely to serve as the basis for home-grown designs, nevertheless it indicates that Foreign Powers realise that British design in aircraft leads the world, and this is bound to have its effect on our future foreign trade in aircraft. And incidentally it proves that it is possible to make others

FRESH

LONDON



PARIS

AIR

Mr. A. Baldwin Raper, M.P., writing in the Daily Mail, pays a tribute to the WESTLAND LIMOUSINE, he says:—

"On June 7th I flew from London to Paris in a WESTLAND aeroplane together with my wife, who—apart from being a bad sailor—had only previously been up in the air for a few brief "joy rides." We had the window full open all the way, and although we passed through about fifteen minutes of quite rough weather over the French coast, my wife felt absolutely fit both during the flight and after arrival at Le Bourget."

WESTLAND LIMOUSINES ensure Reliability and Comfort in Aerial Travel.

Manufactured by

WESTLAND AIRCRAFT WORKS

(Branch of Petters Limited),

YEOVIL, SOMERSET.

London Office:
75b, Queen Victoria Street, E.C 4.

Telegrams—Aircraft 141 Yeovil.
Telephone—Yeovil 141 (4 lines).

than the British taxpayer contribute to the cost of our own experimental work.

Specification of the Blackburn "Swift."

Span 48 ft. 6 in.	Top speed 96 knots
Span folded 17 ft. 6 in.	Minimum speed—
Length overall ... 35 ft. 6 in.	39 knots (engine on)
Height 12 ft. 3 in.	43 knots (gliding)
Total weight 6,300 lbs.	Climb at sea level—
Load (including	750 ft. per min.
fuel and crew) ... 2,750 lbs.	Ceiling 15,000 ft.
Engine—	
450 h.p. Napier "Lion"	

SERVICE ENCOURAGEMENT.

In The Aeroplane for July 12th mention was made of the healthy support being given to the Pulitzer Trophy race by the U.S. Army Air Service for which they have let contracts to four firms for the construction of nine racing aircraft.

News now comes to hand that the U.S. Navy are also going to make a bid for the Trophy and are making five entries. These will be the Curtiss-Navy C.R.1, winner of the event in 1921, a Curtis-Navy C.R. 2, a modification and improvement on the C.R.1, two Booth B.R.1s built by the Aerial Engineering Corporation and a Thomas Morse M.B.7.

For the Curtiss Marine Flying Trophy Race, which will take place at Detroit on August 30th, a fortnight before the Pulitzer Trophy Race, the U.S. Navy are entering two T.R.s, two T.S.s, two Curtiss triplanes type 18T, a Curtiss H.A., a Gallaudet D4, an H16 and a Vought V.E.9..

A LONG WANTED APPLIANCE.

The *Morning Post* states that the Seaplane Floating Dock, which has been built in Sheerness Dockyard to the order of the Air Ministry, has now been commissioned and transferred from dockyard hands to the Air Force.

The dock is 143 ft. long and 50 ft. 6 in. in breadth, and two large modern seaplanes can be docked in the structure at the same time. The dock has 13 buoyancy departments, each flooded direct from the sea, and emptied by blowing with compressed air. The power for the air compressors is supplied by two oil-driven dynamos, which also provide for the current for lighting and power for workshop machinery. An interesting feature is the supply of petrol to seaplanes from a large storage tank on deck by means of the Bywater hydraulic system.

The Seaplane Dock is to be attached to Grain Air Station, and will be towed round the coast for a series of trials.

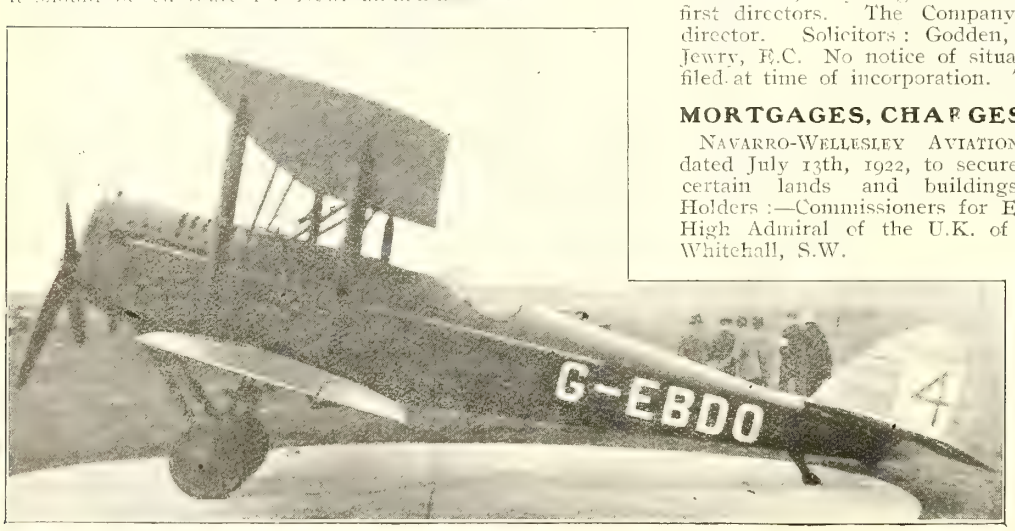
MR. COTTON'S SEALING.

One paid a brief visit to the Martinsyde works, at Woking, to inspect the "A. Mk. II" machine which has been prepared for Mr. Sydney Cotton's seal spotting ventures in Newfoundland.

The machine is the same one which was in the last Olympia Aero Show, but it has now had numerous gadgets added. The undercarriage is adaptable for either wheels or floats and there is an arrangement whereby the air which enters the cabin can be passed through the radiator and warmed.

Wireless has been installed and also the usual and some unusual instruments. A camera has been let into the bottom of the fuselage and projects downwards farther than is usual so as to clear the floats from the field of view.

The whole machine has been finished off with aluminium dope supplied by Cellon (Richmond), Ltd. The erection and alterations to the machine have been supervised by Mr. Tilghman Richards and by the time these notes appear it should be *en route* for Newfoundland. G. D.



THE D.H.37: (Falcon Rolls-Royce, 250 h.p.)—Mr. Butler's touring machine — which made its first public appearance at the Aerial Derby meeting. The general construction and characteristics of the D.H.37 were very fully described in "The Aeroplane" of July 26th.

THE FRENCH GLIDING TESTS.

The French Gliding and Soaring meeting at the Puy de Combergrasse was duly opened on August 7th. M. Chardon on a biplane of the type wherein the pilot hangs from the machine, balances it by his movements, and uses his legs as an undercarriage, made the first flight of 45 secs.

Comparatively little of an exciting nature occurred during the first week. Of the 50 odd entrants, only 9 pilots appear to have made flights. The longest flight made during this period was by Boussotrot on a Farman—actually it is understood the old Gnat-engined "Moustique" monoplane divested of engine, who on August 11th glided for 2 mins. 31 secs., and won the Breguet prize for the first flight of over 2 mins.

A certain number of crashes have occurred. On the first day Paulhan crashed on a Farman "Sport," without engine. On August 11th Allen, an American entrant, on a monoplane, deleted his mount.

On August 14th Camard crashed on a Deshayes monoplane and was slightly injured, and on the 15th Sardier, flying a Louis Clement triplane, crashed, and was badly injured.

Boussotrot's 2 mins. 31 secs. flight remained the longest recorded up to this date.

On the 15th M. Barbot on a de Woitine monoplane made a flight of 2 mins. 43 secs., remaining at the starting level for 1 min. 45 secs.

On the 16th M. Chardon made 5 flights, totalling 5 mins. 57 secs.

THE AIRCRAFT YEAR BOOK, 1922.

The Aircraft Year Book is an annual, published originally by the Manufacturers' Aircraft Association Inc. of the United States of America, but now taken over by the Aeronautical Chamber of Commerce of America Inc. Its general purpose may be indicated by the legend borne on the wrapper—"Read it! You will soon Fly."

Obviously designed for propaganda purposes and mainly for American consumption, it is extremely well produced and is illustrated by large numbers of excellent photographs. But despite its propagandic nature, the book contains a large amount of useful information as to American aerial activities, military, naval and civilian, and particulars of modern American machines and engines.

The section dealing with aviation in foreign countries is presumably reasonably accurate in so far as the American continent is concerned, but the accounts of European activities are—possibly intentionally—a little unduly flattering in general and considerably inaccurate in detail. This is by no means surprising, and detracts little from the value of the work to European readers.

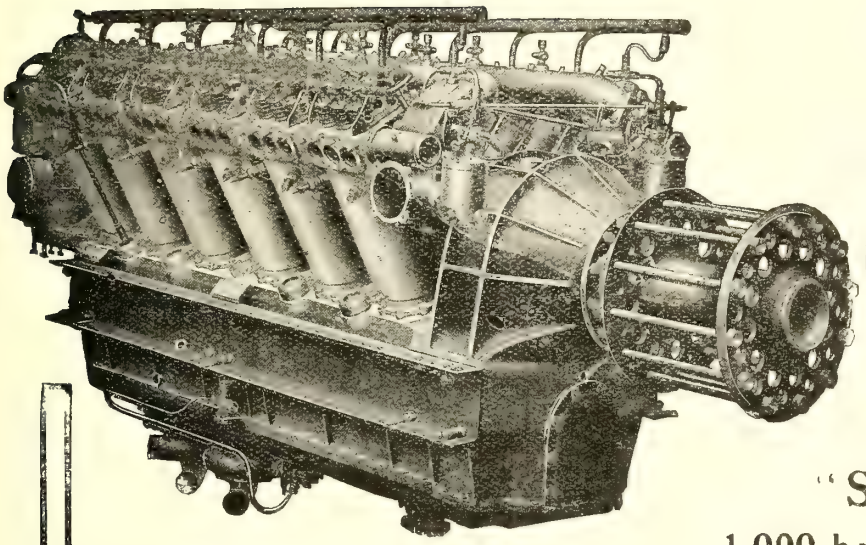
NEW COMPANY.

Brooklands.—Unlimited Company to acquire famous property. The Brooklands Estate Co. was registered on August 11th by Godden, Holme and Ward, 34, Old Jewry, E.C., as a private "unlimited" company, with a capital of £100,000 in £1 shares. The objects are: (*a*) To acquire the freehold property known as Brooklands, Surrey, and to carry on the business of farmers, graziers, dairymen, market gardeners, manufacturers of condensed milk and preserved provisions, etc. (*b*) To acquire the Brooklands aerodrome and motor track and any adjacent property and to carry on the business of an aerodrome and racecourse in all its branches, etc.

The subscribers (each with one share) are:—H. F. Locke King, J. P., Brooklands, Weybridge. Mrs. E. Locke King, Brooklands, Weybridge. The subscribers are to appoint the first directors. The Company may appoint a governing director. Solicitors: Godden, Holme and Ward, 34, Old Jewry, E.C. No notice of situation of registered office was filed at time of incorporation. The file number is 183,710.

MORTGAGES, CHARGES & SATISFACTIONS.

Navarro-Wellesley Aviation, Ltd.—Second debenture, dated July 13th, 1922, to secure £2,935 2s. 4d., charged on certain lands and buildings at Kingston-on-Thames. Holders:—Commissioners for Executing the Office of Lord High Admiral of the U.K. of Great Britain and Ireland, Whitehall, S.W.



"SIKH"

1,000 h.p. 12 cylinder

The following list of Engines, designed and manufactured by the Company, is unequalled in its range. All these engines are of proved efficiency and extreme reliability, and can be recommended with confidence for aviation purposes of all kinds.

"DYAK" 100 h.p. 6-cylinder		"SIKH" 1000 h.p. 12-cylinder	
"ARAB 2" (Direct Drive) 200 h.p. 8-cylinder		"MAORI" 275 h.p. 12-cylinder	
"MANITOU" .. 300 h.p. 12-cylinder		"COSSACK" .. 350 h.p. 12-cylinder	
"MATABELE" .. 400 h.p. 12-cylinder		"SIKH" 500 h.p. 6-cylinder	

We shall be pleased to supply specifications, installation diagrams, prices, and any other information upon request.

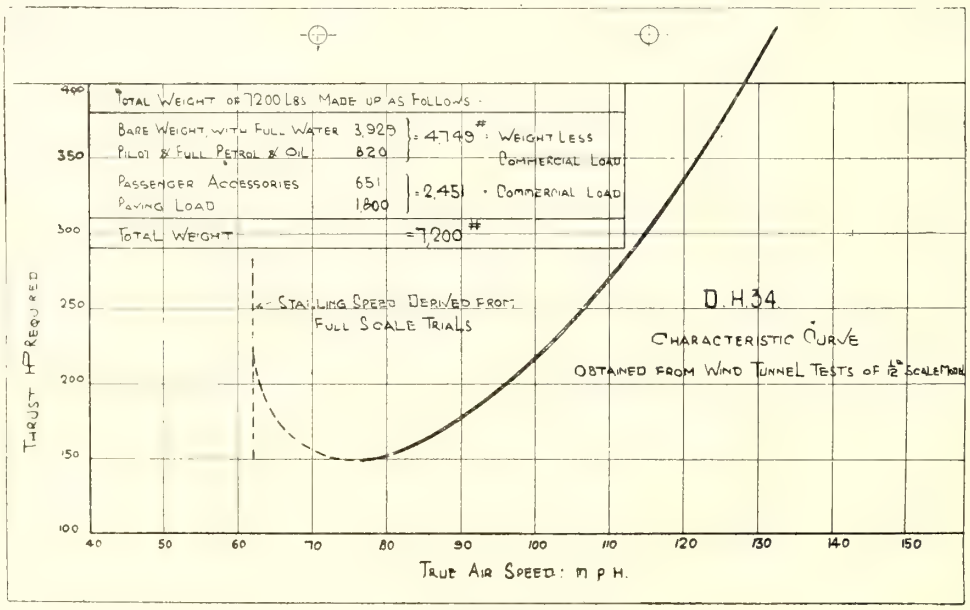
SUNBEAM-COATALEN AIRCRAFT ENGINES

THE SUNBEAM MOTOR CAR CO., LTD.

WOLVERHAMPTON *Head Office & Works* - - - - - - Moorfield Works.
LONDON - - - *Showrooms & Export Dept.*, 12, Prince's St., Hanover Sq., W.1.
" - - - *Southern Service & Repair Works*, 177, The Vale, Acton, W.3.
MANCHESTER - - *Showrooms* - - - - - - - - 106, Deansgate.
" " - - *Northern Service & Repair Works*, 288/294, Eccles New Rd., Weaste.
NEW YORK - - *Showrooms* - - - - - - - 25, West 57th Street

SAFETY NEAR THE GROUND

DEPENDS ON RESERVE POWER.



The DH 34

The Machine sold with a guarantee of workmanship, materials and performance.

THE DE HAVILLAND AIRCRAFT CO., LTD.,

Stag Lane Aerodrome, Edgware, Middlesex.

Telephone—KINGSBURY 160, 161. Telegrams—"HAVILLAND, EDGWARE."

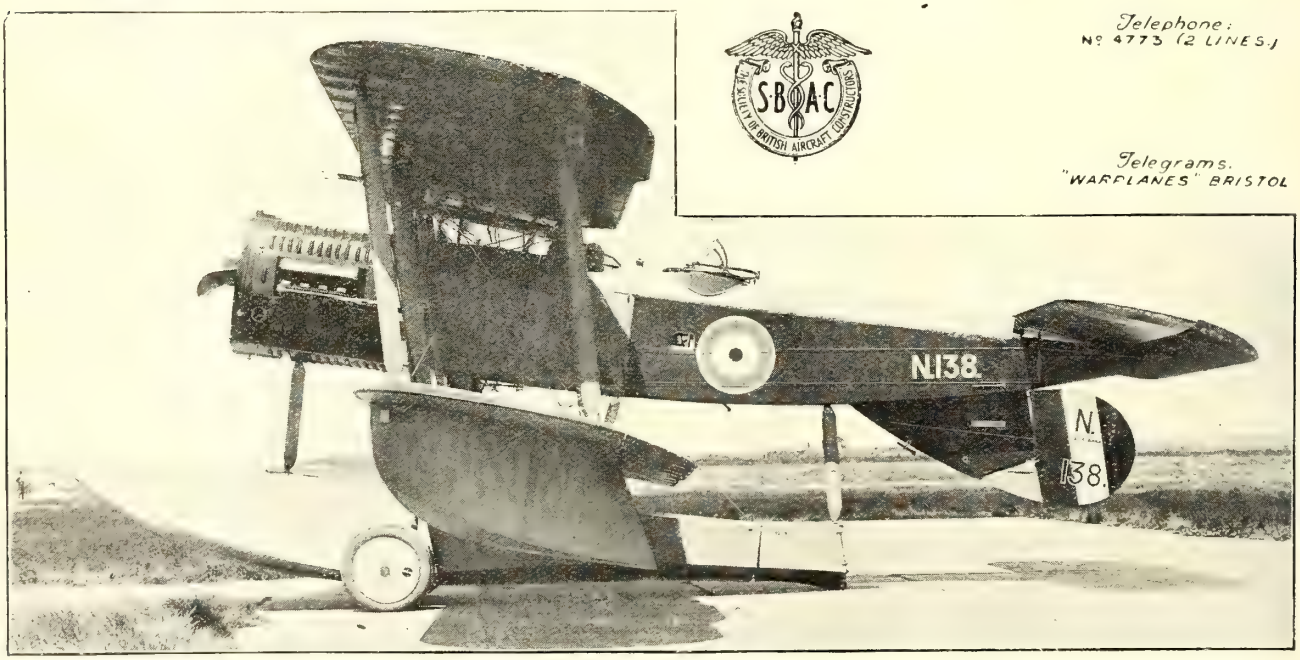
GEORGE · PARNALL & Co

PROPRIETOR GEORGE G PARNALL.

AIRCRAFT DESIGNERS & CONSTRUCTORS.

Telephone: No 4773 (2 LINES.)

Telegrams. "WARPLANES" BRISTOL



The Parnall "Puffin." A Folding-wing Amphibian Aeroplane (Napier Engine). An example of Parnall Design and Construction.

DESIGNERS & MANUFACTURERS OF ALL TYPES OF MODERN AIRCRAFT SPARE PARTS SUPPLIED

COLISEUM WORKS
PARK ROW
BRISTOL

FACTORIES:
PARK ROW, BRISTOL
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THE BRITISH DOMINIONS.

Australia.

Since the re-opening of the Perth-Geraldton-Derby Air Mail Route, which was temporarily suspended in December last owing to delays in preparing landing grounds, etc., the Western Australian Airways, Ltd., have flown 18,000 miles and carried 254 passengers in four months. They are using six Bristol "Tourers" (230 Siddeley "Puma").

Canada.

In a country abounding in hugh tracts of unmapped and virgin territory such as Canada it is a little surprising that people hear so little of the employment of aircraft for the purposes of aerial survey and mapping work. The fact that one hears little does not signify that no such work is being carried out. The Canadian Air Board have been responsible for most of the work that has been made public and possibly this, coupled with the realisation of the importance of aerial survey during the war, emphasised the utility of the aeroplane for survey work in peace.

Price Bros.' Venture.

In 1920 Price Bros. and Co., Ltd., lumber proprietors, decided to investigate for themselves the possibility of the aeroplane in connection with lumbering operations. Two Martinsyde "A" type float seaplanes were purchased in England, and an air harbour, repair plant and photographic laboratory was established in Chicoutimi. Owing to difficulties connected with the originality of the work undertaken, very little was accomplished in the first season. About 1,000 photographs were taken, principally of the watercourses of two rivers. Mr. Nisbet, late of the Martinsyde firm, is in charge.

The season 1921 was started full of confidence, a working plan laid down and the Aviation Department was to run under the orders of the Logging Department. Unfortunately the season was a bad one, the fine weather of June and July being marred by many forest fires, the smoke from which rendered flying difficult and sometimes impossible. There were only 12 days during the summer which were suitable for photography, but during the 24 hours' photographic flying which was accomplished during these 12 days 1,700 vertical pictures were exposed, and practically all the photographic work undertaken was accomplished.

Two river courses were photographed and mapped, and a map of the forest crop within the watershed of the rivers, an area of some 300 square miles, was obtained. During the intervals between photographic jobs fire patrol was regularly carried on, areas damaged by fire were examined and reports issued, and the boundaries of these areas were sketched and plotted on forest maps for record.

An ocular cruise from the air of a portion of the Saguenay drainage area was made, timber stands, their species and distribution, burns, lakes, swamps, and like data were sketched and plotted on a map with success. The damage done by the budworm and the extent of the attack was investigated and reported on.

Other work of minor importance filled in the gaps when flying conditions were not ideal. Passengers were carried and a few officials and bush foremen of the company were shown over portions of the limits.

In the season 100 hours' flying was accomplished by one pilot with one machine, covering a distance of roughly 8,000 air miles.

The Laurentide Air Service.

In The Aeroplane for May 17th it was mentioned that a Vickers "Viking Mark IV" had been despatched to Canada for use of the Canadian Forestry Department. It has since been learnt that the "Viking" in question was a "Mark V." and was purchased by the Laurentide Air Service, a commercial company operating in Eastern Canada. This firm has no connection with any Government Department, although it is doing a great deal of work for the Ontario Department of Lands and Forests.

The machine is to be employed with other flying boats of a different type for reconnaissance of timber limits, carriage of ground survey parties, delivery of mails and other allied services.

The Laurentide Air Service is operating in conjunction with, though it is not actually a part of, the great Laurentide Company, one of the leading Canadian timber concerns. Great credit is due to those who have so pluckily formed the company and one wishes them every success.

The South-West African War.

The latest news concerning the South African Air Force's activities comes from the *Johannesburg Star* of June 6th. From this one gathers that the South-West African Field Force has been carrying on operations against a tribe of Hottentots known as the Bondelzwarts. The force is under the command of "Colonel" Hofmeyr, who is apparently the Administrator of German South-West Africa and not in fact a professional soldier. One seems to remember the name of Mr. Hofmeyr as that of a leading South African politician.

Apparently, according to Colonel Hofmeyr, to give him his local rank, the operations against the Bondelzwarts came to an end some time prior to June 5th, but the South-West African papers seem to be of the opinion that instead of the end being in sight the outlook has grave possibilities. Sinister reports have reached the South African papers as to the treatment of rebel Hottentots after they have been captured, and it is said that at any moment reprisals may be expected. The settlers in the vicinity of the rebel area are naturally anxious and call for stronger military action under experienced soldiers.

Of the aircraft which were sent from Pretoria to help the South-West Field Force one crashed, but fortunately both the pilot and observer got away safely. It seems likely therefore that we shall hear a good deal more about aircraft in South Africa ere long.

FOREIGN INTELLIGENCE.

Progress in Holland.

Very considerable advance is being made in aviation in Holland, despite universal bad trade and other limitations. The K.L.M. Company, besides operating the Amsterdam-Rotterdam-London Air Line with great regularity is now running an Amsterdam-Brussels-Paris Service with their own material and personnel.

It is particularly to be noted that Dutch pilots only are now employed. Friends in Holland say that the British pilots in the K.L.M. Service were universally liked in Holland, but it is only natural that the Dutch prefer to see a Dutch Line run by Dutch pilots, just as in the early days of aviation we in England, having learnt all we could from French instructors, replaced them by British pilots. Recently the K.L.M. Company had about a dozen Dutch pilots, all of them formerly in the Dutch Army.

The new F.3 Fokker with the Rolls-Royce engine is doing excellent service on the Moscow-Königsberg Line, and it is understood that a certain number of them will be used on the lines from Amsterdam, though at present the K.L.M. mechanics at the London Terminal Aerodrome are chiefly skilled in handling the Siddeley "Puma."

Naturally, the greatest constructional work in Holland is done by the Fokker Company. This firm's commercial machines are pretty well known, but much less is known of the War machines which they have produced since the Armistice. The first of these was the Fokker C.I. reconnaissance two-seater, with 185 h.p. B.M.W. high-altitude engine, with which the Dutch Army is equipped. This machine is a slightly enlarged edition of the well-known Fokker D.VII, but the petrol is carried in a double tank round the axle. It is claimed that this makes the machine practically fireproof. Experiments have shown that if the tank is set on fire by enemy action the flames will not touch the machine so long as it keeps flying.

Another new machine similarly arranged is a biplane, with a 300 h.p. Hispano-Suiza engine. Yet another machine, of which very little has been heard, is an armoured monoplane, with 300 h.p. Hispano-Suiza. The first of these had an accident during its trial flight. This machine had a flat front radiator protected by a circular piece of sheet steel armour revolving with the airscrew and provided with fins which made it serve as a centrifugal ventilator for the radiator. There is also a new reconnaissance machine with a high-compression Liberty engine intended for the new Dutch Army Specification.

For the Dutch Navy Fokker has been producing an amphibian, with a duralumin boat, also a Liberty-engined torpedo-carrier, with floats. And there is a monoplane school machine with a 90 h.p. Curtiss engine. Furthermore, there are two school machines with rotary engines, one with the seats side by side, and the other in tandem. Evidently, Mr. Fokker's activities have not suffered from the Dutch climate.

The Spyker factory, which made a number of very good aeroplanes, has now ceased aircraft work, and confines itself to cars. The Van Berkel Patents firm have also stopped work.

A new concern called the Nationale Vliegtuig-Industrie, of which Mr. Carley, formerly a director of an aircraft factory of his own, is manager, has started up. This firm is said to be financed by the same money which started the "N.E.T.H.My," who are the Vickers' agents in Holland. It is said that this new firm is to have its factory on the Rotterdam Municipal Aerodrome.

The aforesaid Rotterdam Municipal Aerodrome has proved itself to be a great success, and is decidedly a credit to Mr. B. Stephan, the chief of the Technical Service of the Royal Dutch Air Force, who was responsible for the laying out of the aerodrome and the designs for the buildings.

There is some talk of the municipality of Amsterdam taking

over the Schiphol Aerodrome, in imitation of Rotterdam having its own aerodrome. This would be a good thing for Dutch aviation. The War Department, which at present owns Schiphol Aerodrome, does not seem inclined to spend money on keeping the surface in order.

The German Junkers firm are said to be building up and testing various machines at Schiphol. Apparently a large amount of Junkers material was brought over into Holland immediately after the Armistice, much as Mr. Fokker brought over vast quantities of raw material and partly finished material.

These Junkers machines have been assembled and despatched to various places. Some of them went to Berne in Switzerland, and probably the machine on which the late King Charles of Hungary made that gallant bid for his crown was one of them. Others are being delivered to Dantzig and Moscow. An excellent flight was put up early in the year by one of their pilots, who left Amsterdam one morning at 07.30 and was in Moscow the same day at 20.00 hours.

German pilots do not seem to be quite as popular in Holland as they were, especially now that the Dutch themselves are becoming first-class aviators. One is inclined to believe that it was by no means the best class of German aviator who attempted to fly in Holland. Considerable harm has been done in Holland by a German, posing as an inventor, who interested a number of people in a very big airship scheme, which, after providing the inventor with a comfortable living for some months, finished its career by providing him with a passage to the United States.

One gathers, also, that Mr. Koolhoven, who has always been regarded in this country as one of the world's greatest aircraft designers, has recently been displaying activity, and that certain novel machines of his design are likely to make an appearance in Holland.

Some Interesting French Notes.

M. Béchereau, designer of the Deperdussin Monoplanes of the pre-war era and the early Spads of the war period, is at present constructing at the Etablissements Letord a single-seater "*appareil de vitesse*" to the order, it is believed, of the French Government, and there is also a rumour that one of this type may be entered for the Coupe Deutsch.

M. Bille, a very early pilot of Farmans, is superintending at the Bellanger Car Factory the erection of an experimental all-metal, variable surface machine of his design.

M. de Monge, in conjunction with the Etablissements Buscaylet at Issy-les-Moulmeaux, is constructing a single-seater "*avion de chasse*" and a sporting monoplane of novel form.

M. Pateras-Pescara is constructing a second helicopter at the Maison Vinot-Deguingand, with which he will make experiments in horizontal flight

M. Edmond de Marçay is re-entering the aviation world, presumably with official encouragement. Machines produced by him to the designs of M. Botalli just after the war, created a good impression, one even holding a speed record at a period when to hold one of these for more than a day was considered an achievement. The de Marçay "Passe Partout" biplane was claimed to be the smallest biplane that had flown successfully.

The Farman B.N.4 (4-370 Lorraine Diétrich engines) which took up quite a lot of space at the last Paris show, has made some flights at Orly, piloted by M. Bossoutrot. When lightly loaded the machine manœuvred easily, but fully loaded it showed a distinct disinclination to get off.

The Berlin—Moscow Air Mail Service.

On March 1st it was announced that a company had been formed, to be called the Deutsche-Russiche Luftverkehrs Gesellschaft, m.b.h., Berlin, which was to have as its object the operation of air transport services between Germany and Russia, and any other business connected therewith.

On May 1st an air service between Berlin and Moscow was formally opened. On May 6th a Berlin—Stettin—Königsburg service was due to begin, and until this was in operation the Berlin—Königsburg link of the Moscow service was maintained by regular express trains.

The first machine, one of ten Fokker monoplanes that are being put on the service by the Deutsche Luft Rederei, left Königsberg for Moscow on May 1st, and on arrival was given an official reception by the Soviet authorities. The return journey was made two days later.

The distance to Moscow as the crow flies is 1,160 kms., and the time taken for the journey was nine hours. It is intended to maintain the mail service of three journeys each way weekly, but passengers are not being carried at the present.

Colombia.

Since the beginning of September, 1921, the German-Colombian Aviation Co. have operated a regular mail and passenger air service on the routes Barranquila-Girardot-Neiva and Barranquila-Cartagena on the Magdelena River. Five Junkers monoplane seaplanes are used, and they are covering in 7 hours, the distance which usually takes travellers 9 days by steamer and rail.

The total flights for the last four months of 1921 were 307, giving a mileage of 34,550, and 29⅔ tons of mails and parcels and 303 passengers were carried during that period.

FROM HOUNSLOW TO PORT DARWIN IN 28 DAYS.

["14,000 Miles through the Air." By Sir Ross Smith. McMillan & Co., Ltd. 10s. 6d. net. (137 pp. 50 illus.).]

All readers of The Aeroplane who could possibly do so must have gone to hear the late Sir Ross Smith lecture on his flight to Australia. It is possible that the wonderful collection of films taken on the way may be seen again but those who missed the lecture should read the book. It is the story of a Great Adventure which owed its success to the pluck, unselfishness, foresight and careful attention to detail of the crew of four who carried it through.

Ross Smith was not only a great aviator, he was a good sportsman. Throughout the entire book he is unceasing in his praise of his Navigator (his brother Keith) and his two Master Mechanics (Sjts. Bennett and Shiers), and the Vimy and her Rolls-Royce engines. Writing of their landing at Port Darwin he says "We looked over the Vimy and unspoken admiration crept over us as we paid a silent tribute to those in far-off England for their sterling and honest craftsmanship."

Ross Smith was too big a man to advertise his own share in the voyage but 188 hours in the air, landing grounds which were sometimes covered with tree stumps and sometimes bogs and nearly all so small that taking off was the riskiest part of the whole flight, added to flying in every possible sort of weather from a bad English November to an Australian December inside 28 days, speak for themselves.—

C. H. MCA.

THE CROSS CHANNEL AIR SERVICES, APRIL–JUNE.

A communiqué just issued by the Air Ministry gives some interesting statistics as to the traffic on the Cross-Channel Air Routes for the three months, April-June.

The essence of these statistics may be summed up as follows:—

Machines at Croydon.—Departed 764, arrived 768, total 1,532. Total for same period 1921, 1,001.

Nationality of machines arriving and departing.—British 915, French 228, Dutch 189. British machines same period last year, 246.

Total passengers carried 3,128. Total 1921, 3,565.

Passengers carried by British machines, 2,402 (76.8 per cent), 1921, 1,653 (46.4 per cent.).

Total weight of goods to and from Croydon, 144 tons; 1921, 56.9 tons.

Weight of goods carried by British machines, 53.6 tons; 1921, 4.9 tons.

Percentage of flights completed in four hours.—British machines, April 92.3 per cent.; May 92.3 per cent.; June 95.2 per cent. French machines, April 71.3 per cent.; May 85 per cent.; June 79.1 per cent.

These figures are distinctly satisfactory, as showing that the British services maintain a very high efficiency, and carry a very large proportion of the total traffic.

TRADE SPORT.

A notable cricket match is to be played on the Fairey Aviation Ground (adjoining the Fairey Works, Hayes) on Wednesday, August 30th. Pat Hendren and J. W. Hearne are bringing down a strong team of Middlesex County Players to meet the Hayes and District Works Cricket League, of which Mr. C. R. Fairey is President. Both teams are being entertained after the match, and it is hoped that all and sundry of the Aircraft Industry who can spare time will come and help with their applause.

EXCHANGE IS THE BEST POLICY.

Herr Wolfgang Kasslick, of Villa Augusta, Ostrau, Bad Schandau a/Elbe, Sachs-Schweiz, Germany, who is a keen student of aeronautics, would like to know whether any reader of The Aeroplane who wishes to keep in touch with German aviation would like to exchange his weekly copy of The Aeroplane for Herr Kasslick's weekly copy of the *Illustrierte Flugwelt*.

The present state of exchange practically makes it impossible for German readers to subscribe to The Aeroplane, therefore one considers that Herr Kasslick's offer of exchange might well be extended in order to promote friendly relations and exchange of knowledge between the two countries which lead aeronautical progress. If any other readers of this paper would like to exchange their weekly copies of The Aeroplane for German aviation papers one would like to have their names and addresses so that one may communicate with the German papers and arrange the exchanges.

On August 7th, for the second time in succession, B.T.H. Magnetos helped Mr. J. H. James to secure the Aerial Derby Trophy for First Place.

His machine — "Mars I" — The Gloucestershire Aircraft Company's biplane, popularly known as the "Bamel," has a 450 H.P. Napier Lion engine, equipped with a **B.T.H. A.V. 12 Magneto** and this year averaged 179½ m.p.h., being 16 m.p.h. better than last year.

B.T.H. Magneto Successes.

Second Place was gained by Mr. R. A. de H. Haig, flying a Bristol Bullet machine, equipped with a 440 H.P. Bristol Jupiter engine and a **B.T.H. A.V. 9 Magneto.**

Third Place was secured by Mr. F. P. Raynham, in a Martinsyde F. 6 machine, equipped with a 200 H.P. Wolseley Viper engine and a **B.T.H. A.V. 8 Magneto.**

B.T.H. Magnetos were also fitted to the machines gaining **Second, Third** and **Fourth** places in the 1922 **Aerial Derby Handicap** and to the machines gaining **First, Second** and **Third** places in the **August Open Handicap.**

This is the fourth successive Aerial Derby in which B.T.H. Magnetos have been fitted to machines gaining the First and Second places!

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CONTINENTAL ARRIVALS AND DEPARTURES.

ABBREVIATIONS:—A.D.—Aircraft Disposal Co. B.A. Berkshire Aviation Co. B.C.—Bristol Aeroplane Co. C.A.—Department of Civil Aviation. D.A.—Daimler Airway. D.H.—De Havilland Aircraft Co. G.E.—Compagnie des Grands Express Aeriens. H.P.—Handley Page Transport Ltd. I.L.—Instone Air Line. K.L.—Koninklijke Luchtvaart Maatschappij. L.A.—Leatherhead Aviation Services. M.A.—Messageries Aeriennes. M.W.—Marconi Wireless Telegraph Co. Ltd. P.O.—Privately owned. W.A.—Westland Aircraft. S.F.—Surrey Flying Services.

ANALYSIS OF FIGURES

FOR WEEK ENDING AUG. 20th.

Number of trips made during week.—I.L. 56, H.P. 33, D.A. 30, M.A 37, G.E. 11, K.L 24, S.F. 3, D.H. 1, A.D. 5.

Number of passengers carried.—I L. 230, H.P. 260, D.A. 125, M.A. 48, G.E. 33, K.L. 33, S.F. 3, D.H 2, A D. 0.

Total number of trips by British machines: 137 carrying 620 passengers.

Total number of trips by foreign machines: 72 carrying 114 passengers.

Trips per day—Monday 37; Tuesday 33; Wednesday 32; Thursday 33; Friday 34; Saturday 32; Sunday 8.

STATISTICS.

Machines, 209; Passengers, 734; Crews, 342; Total Personnel, 1076

Corresponding week last year:—

Machines, 115; Passengers, 462; Crews, 144; Total Personnel, 606

Corresponding week, 1920:—

Machines, 115; Passengers, 240; Crews, 144; Total Personnel, 384

NOTES OF THE WEEK.

Mr. Courtney's Boulton and Paul P.9 has now arrived at the aerodrome and he has made one or two flights. The machine is a two-seater with dual control and a 90 Raf engine. The span is 27 ft. 6 ins., or 6 ins. more than a "Camel." The part of the fuselage behind the pilot's seat has been arranged to accommodate a biggish suit case.

On Thursday of this week Mr. "Jimmy" James took the Gloucestershire Aircraft Company's "Sprawk" back to Cheltenham where it is being prepared for the King's Cup race.

The Instone Air Line is reorganising the staff and the 16.15 hrs. service from Brussels and the 11.00 hrs. from Paris to London have been withdrawn, for the time being at any rate. They also intend to give up carrying goods as they find that over short distances such as the Paris and Brussels routes this does not pay. Certain of their pilots have been "axed" in the economy scheme, so if anybody wants a first-class pilot such a one can be reached by communicating with THE AEROPLANE.

Handlec Page Transport are now running two services a day each way to Paris, leaving each end at 11.00 hrs. and 16.00 hrs. The H.P. people have created a new passenger-carrying record this week, having carried 260 passengers in the seven days. Only 33 machines were used, making an average of 7.9 passengers per aeroplane.

The Daimler Airway run three services a day in each direction and it is very seldom that they send a machine with anything but a good load of passengers. Everybody at the aerodrame, speaking individually, has nothing but praise for the Daimler system of organisation, testing and maintenance, and though nearly all were sceptics as to the feasibility of Colonel Searle's schemes with present time aircraft the majority are now agreed that he is working on the right lines. Major Woods Humphrey deserves every credit for the efficiency with which the organisation which he has laid down is working in practice.

Sunday was a busy day, Mr. Muir was flying the Surrey Flying Services Avro steadily throughout the afternoon, taking up both 5s. and more expensive joy-riders. Mr. Leavey's red Avro also came over from Penshurst and Mr. Robinson "minor" on a Daimler D.H.34 and Mr. Hubert Broad on a De Havilland D.H.9 both came in hand-in-hand from Paris, followed by Mr. Larry Carter on a W.8. The last-named did some steeply banked turns coming into the aerodrome and making one of his usual perfect landings.

Several Croydon pilots will take part in the race for the King's Cup. Mr. Cyril Holmes will fly Mr. Courtney's P.9 which has been entered by Brig.-Gen. J. G. Weir. Mr. Barnard will fly the Instone D.H.4 and a Handley Page and Daimler pilot will each fly one of his firm's machines. Mr. Muir, as already stated, will fly the Duke of Sutherland's D.H.9, which is now ready for test.

Mr. Hofstra brought over the first of the Rolls-Royce Fokkers during the week. This machine is some 10 m.p.h. faster than the "Puma" machine.

It is interesting to note that in connection with the party of 62 carried by the Instone Air Line on Monday of last week Mr. Barnard and Mr. Robins each made three trips between Paris and London. The weather was appalling and it seemed doubtful at one time if they would get through.

Mr. Hall is getting more and more like Mr. Mark Sabre (the hero of M. Coué's triumph, "If Winter Comes") in that he is never happy unless he is suffering.

Mr. Muir unfortunately damaged the Renault Avro during the week. The engine petered out as he was taking off over the Customs office and the machine landed on its nose in a cornfield.—G. D.

To Brussels by the Instone Line.

On a day last week in response to an invitation from the Instone Air Line one made a return trip by air to Brussels. One started from Croydon at 11.30 hours in D.H.34 G-EBBR (Napier engine) piloted by Mr. Barnard. There was a westerly wind of some 30 m.p.h. blowing. This particular machine is faster than any other "34" on the route owing to the fact that it has a two-bladed airscrew instead of the usual three-blader. Furthermore this does not seem to affect the aeroplane itself adversely as in the case of the 18s.

Directly the machine got under way the air-speed indicator registered 107 m.p.h. at 1,850 revs., and passing over Sevenoaks we reached the coast in 30 minutes' flying. Passing along the shore over Hythe we left the English coast at Folkestone Harbour and in about ten minutes made France over Calais and laid a course on St. Omer.

The official air route to Brussels is by way of St. Omer, Lille, Tournai and Ath, crossing the southern extremity of Brussels and so up to Evère which lies to the north-east side of the City. The reason that this route was chosen was because of the unsuitability of the country for forced landings on the more direct route.

Turning east just before St. Omer is reached we crossed the old Front Line at Armentières, with Bailleul on our left. Pilots who knew that country during the War can imagine the curious feeling one has when wandering across the Line at 3,000 ft. and casually floating over Lille without being worried by the well-known 11 inch "Archie" that used to lurk in that town. It seemed a species of *lese majesté*. The trench line here has entirely disappeared and all the towns are re-roofed with bright red tiles.

As we neared Ath one noticed an enormous earth-work in the form of a stadium into which Olympia could be dumped and then not be noticed much. Exactly what it is one does not know.

After 90 minutes' flying Brussels came into view. Passing up to the aerodrome one gets a very fine view of the City, in which the Palais de Justice towers above all other buildings. Brussels aerodrome itself is at the present moment singularly bad, the surface being undulating. There is a large Zeppelin shed up in one corner which was built by the Germans during the War and was used as a base for raiding England. It is, however, one was told, about to be demolished.

As we landed on the aerodrome the Instone "Vimy," which had been held up by leaky radiators, left for London with a full load of passengers. Numerous Fokkers from Amsterdam and "Goliaths" from Paris came in from time to time, and during the afternoon Mr. Shaw and Mr. Larry Carter came in flying wing tip to wing tip in two D.H.9s which they were delivering for the Aircraft Disposal Company. Mr. Piercy had arrived previously in the morning on a similar machine and he returned to Croydon on the "Vimy" and came over again later on in the day on another D.H.9. We passed him on our way home in mid-Channel.

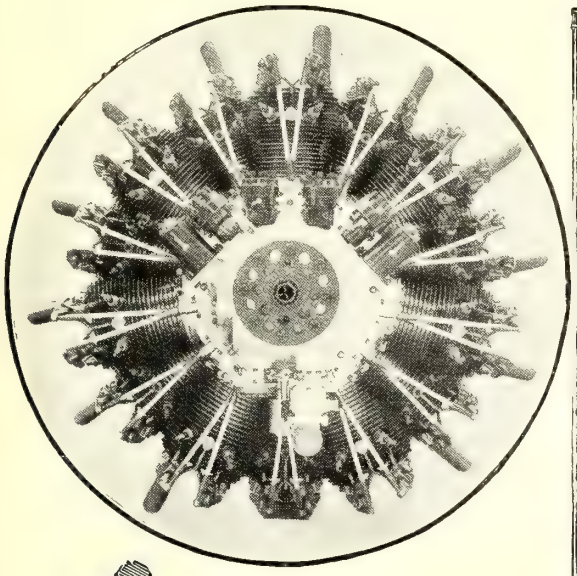
Various Belgian Army machines were performing during the day, including sundry D.H.9s, a Hanriot, and an old fashioned tail-boom Caudron. A Morane Parasol and a Fokker D.7 went up later on, the Fokker doing curious stunts, such as upward spins, etc. The Instone "Vulcan," which turned over on its nose owing to the bad state of the ground, was in the big Instone shed and was awaiting the arrival of a new nose-piece.

We started back in the "34" at 16.20 hours, this time with a 30-mile wind against us. We crossed the trench-line somewhere near Plugstreet Wood and with powerful glasses one could very easily see Ypres. The town is now entirely reconstructed with the exception of the Cloth Hall, the ruins of which stand up isolated. Once again there was nothing but red roofs, though Hill 60 and the country round by the Messines Ridge still looks a bit tousled.

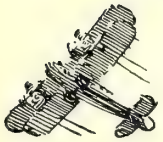
Passing on over such familiar towns as Hazebrouck, Cassel and with "Pop" away over to the right we made the coast to the East of Calais. The sea was extremely rough and the crossing took half an hour or so owing to the wind and one looked round to see if there happened to be any Channel swimmers about who could transport us to land in the event of engine trouble, though to expect trouble with a Napier engine is merely impudent.

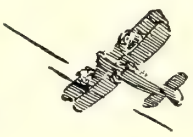
One does not quite know whether one likes to be able to see right across the Channel or not. When it is misty one always thinks that one probably may be near the other side but when one can see it it looks an awful long way away.

Coming over Folkestone we came down to about 1,000 ft. as the wind was less there than higher up. When over Tonbridge we could clearly see the beacon light at the top of Titsey Hill which had just lit itself up. At Biggin Hill we



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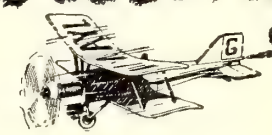
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passed under a Farman Goliath coming from Paris and Mr. Barnard throttled back and put the machine's nose down. The air speed indicator showed 135 m.p.h. and a few minutes later we landed at Croydon after two hours forty minutes. With the help of an Instone car to Waddon station one made from Brussels itself to one's own house in exactly 3½ hours, which fact may be of considerable interest to those many omniscients who daily profess to all and sundry that air traffic is slower than ground traffic.

Of course one knows perfectly well that none of these people ever travel by air and few of them have ever seen an aeroplane. Nevertheless owing to the places in which they hold forth some people become impressed with the fact that they sometimes talk sense, which as Euclid said is absurd.—G. D.

Slough.

The Leatherhead Aviation Service suffered a rather severe accident on Sunday afternoon. Mr. C. A. Graham was flying an Avro at Slough with Mr. W. G. Chapman and Mr. Bert Gude as passengers, when after coming out of a loop at about 1,600 ft. the machine spun into a tree and was wrecked. All the occupants were severely injured.

Messrs. Graham and Chapman were taken in an ambulance to Windsor Hospital and the third was conveyed thither in a private car. The owner of the private car waited at the hospital for quite half an hour while the place was ransacked for a surgeon, while Mr. Graham lay delirious on a bed and the two other victims on stretchers in a kind of reception room. Owing to pressure of business the car-owner then had to leave and even by that time no surgeon was forthcoming, which seems a scandalous state of affairs in a big hospital.

At the scene of the crash the usual crowd had collected and although petrol was running all over the place one individual was calmly smoking a cigarette. When remonstrated with by an ex-officer of the R.A.F. the individual put out his cigarette and then re-lit it with a match which he threw on the ground. He and the cigarette were then promptly "put out" with a straight left to the jaw applied by the said ex-officer and thus the casualties were increased to four as apparently the ex-officer thought that three was unlucky. The local police seemed to concur with his opinion and action. Knowing something from experience of the sound sense and sporting spirit of the Slough police one can quite believe that they would do so.

Everyone will wish Mr. Chapman and the others a speedy recovery and will sympathise with him on his bad luck.

Stag Lane.

Owing to the enormous amount of work carried out by the De Havilland Air Taxi Hire Service it has been impossible to extract more than bare figures from them regarding their work during the past month. During July they flew a total of 205 hours, which at 90 m.p.h. is equal to a total distance of 18,450 miles. The total weight of goods carried during this period was 27,000 lbs. The Ostende-Lympne newspaper service has been running very consistently, and two of the machines employed on that service have completed every flight according to schedule.

Five pupils are now having dual-control instruction at Stag Lane aerodrome and are showing good progress.

PERSONAL NOTICES.

Deaths.

LUARD and DUNCAN.—On August 17th, at Dardoni (Punjab), F/Os. Robert Blaine Luard and David Chalmers Duncan. The Exchange Telegraph Co. states that F/Os. Luard and Chalmers crashed while taking off with a load of bombs.

STEWART.—Capt. S. J. Stewart, whose death was recorded in The Aeroplane recently, was until May last chief pilot of The River Plate Aviation Company. Major Shirley Kingsley, his late chief, who is at present in Europe, says that Capt. Stewart resigned in order to go to Paraguay when the Revolution started, as he found civilian flying too dull for his adventurous temperament. Major Kingsley says that Capt. Stewart was a first-class pilot and would never have killed himself through bad judgment. It is known that Capt. Stewart was flying over the rebel forces at the time on an Armstrong-Whitworth biplane supplied to the Paraguayan Government by the Aircraft Disposal Company. The assumption therefore is that the petrol tank of the machine was hit by a chance bullet from the rebels, with the result that it caught fire in the air. It is a curiosity of Latin and American warfare that the bodies of Capt. Stewart and his passenger should have been sent by the rebel chief to the Government Forces with compliments and regrets.

Engagement.

PLUNKET—BARNATO.—A marriage has been arranged between Dorothe, widow of Capt. Jack Barnato, R.A.F., and daughter of Mr. and Mrs. Joe Lewis, and Lord Plunket, son of the late Lord Plunket and Lady Victoria Braithwaite.

Births.

ANDERSON.—On August 17th, at 37, Clanricarde Gardens, W.2, to the wife of Major H. Graeme Anderson, M.D., Ch.B., F.R.C.S., of 75, Harley Street, and Consulting Surgeon to the R.A.F.,—a daughter.

BUXTON.—On August 13th, at Rose Cottage, Dormansland, to Kathleen (*née* Wood), wife of F/Lt. V. Buxton, O.B.E., R.A.F.—a son.

GREY.—On August 15th, at Laurel Cottage, Eastcote, to Katharine (*née* Downes), wife of Trevlyn Grey, R.A.F.—a son (Laureston Lee).

LORAINE.—On August 14th, at Horsley Towers, Horsley, Surrey, to Winifred Lydia, wife of Robert Loraine—a daughter.

CAPTAIN MACMILLAN'S PROGRESS.

The machine on which Capt. Macmillan flew to Calcutta was put up to auction on August 15th and realised £120. It was re-sold the following day for 2,000 rupees.

Capt. Macmillan accompanied by Mr. Malins, attempted to leave Calcutta on August 18th on a new Fairey seaplane (Rolls-Royce engine). The machine showed a list, and failed to rise. It may be assumed that this was owing to rigging by inexperienced hands, for before the machine left England it was tested by Col. Vincent Nicholl, who said that it was one of the best machines he had ever flown.

Major Blake, the other passenger, was left behind in Calcutta, as it was found necessary for him to undergo an operation for appendicitis. According to the latest reports he is making a good recovery from the operation.

Capt. Macmillan and Mr. Malins left Calcutta for Rangoon in the Fairey seaplane at 08.30 hours on August 19th. Reports from Calcutta, dated Monday, August 21st, state that grave anxiety is felt for their welfare, and no news had then been heard of them for 48 hours. It was feared that they had been beaten down by bad weather in the Bay of Bengal and lost.

One report stated that they had not availed themselves of the services of the Meteorological Department in Calcutta, which knew that bad weather was coming up from the South. Also the mistake of going to Calcutta instead of Lahore some weeks ago shows that their navigation is defective.

[As this paper goes to press news has been received that the missing aviators have been found. No details are available.—Ed.]

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MAGNETOS.

British Thomson Houston Co., Ltd., The, Rugby. "Asteroidal," Rugby Rugby 286 159

PARACHUTES.

E. R. Calthrop's Aerial Patents, Ltd., 423 & 423A, Edgware Road, London, W.2. "Savemalivo," London. Paddington 6332 161

RADIATORS.

Lamblin, A., Etablissements Lamblin, 10, Rue de Copenhague, Paris, France 162

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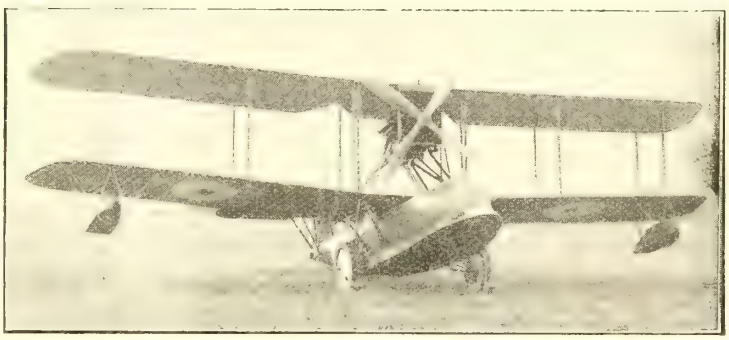
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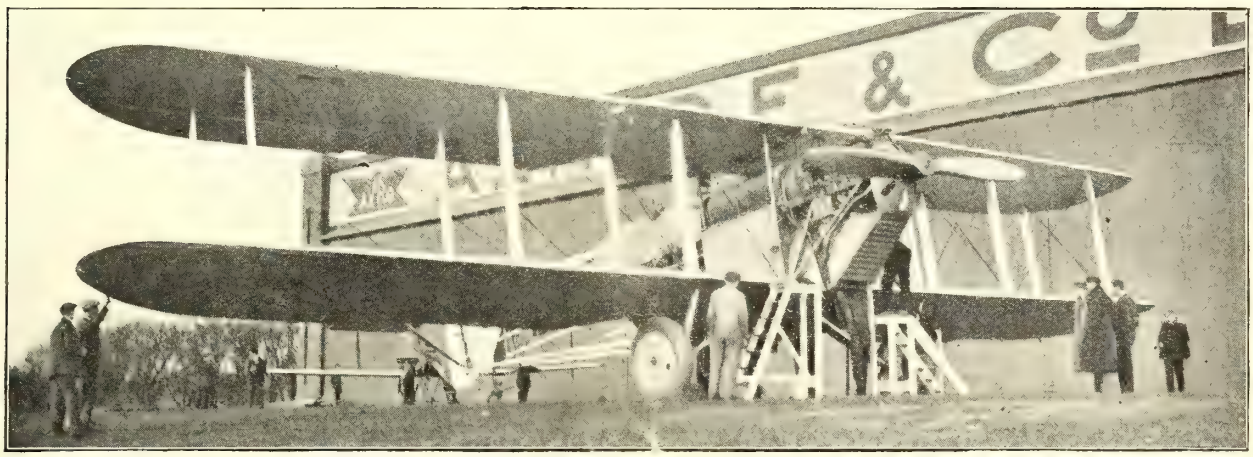
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WEDNESDAY, AUG. 30, 1922.

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THE GIANT'S TOILET.



THE AVRO "ALDERSHOT."—This, the first photograph to give a good scale effect of the new Avro Bomber (Rolls-Royce "Condor" engine), shows the machine having its bonnet and fuselage covering adjusted before leaving for a test flight.

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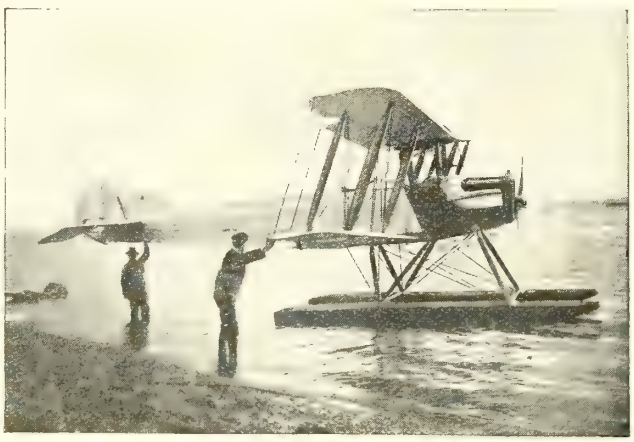
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ON THE USES OF GLIDING AND SOARING.

In the engineering section of this paper will be found such technical information as is available concerning the German and French gliding and soaring competitions. The superiority of the Germans over the French is self-evident. Though quite naturally the French attribute the remarkable successes of the Germans to better ground and better weather conditions, it is obvious that the German machines are better than the French and though perhaps the French pilots are as good as the Germans as pilots of power-driven aeroplanes, it is clear that as glider pilots they are neither as clever nor as experienced.

The only French machine which showed any serious effort towards efficiency seems to have been that of M. de Monge, and it unfortunately was crashed by M. Casale, one of the best French racing pilots but presumably not the equal of Herren Klemperer, Martens, and Hentzen as a soaring pilot. On the other hand various German machines showed remarkable intelligence and skill in their design and construction.

British observers who were at the Rhön trials say that the German performances were uncanny. The sensation of watching a small monoplane steadily performing figures of eight just like a power-driven machine a few hundreds of feet over one's head in dead silence, broken only by the voice of the pilot now and then calling down to his friends on the ground, is, as one observer remarked, enough to make one doubt whether one is quite right in the head. All agreed that the greatest possible credit is due to the industry, ability, pluck and skill of the Germans who have made such feats possible.

If the French feel annoyed by these German successes, they have only themselves to blame. The people to be thanked primarily for these astonishing performances are the members of the Commission Aéronautique Inter-Alliée—which the Germans always call by its French name as an indication of its inclinations. By its foolish attempts to crush German aviation out of existence this precious Commission, forgetting that the German is as undefeatably pertinacious as the Englishman, merely forced German ingenuity into a fresh channel with the result that instead of following their natural inclination to cram on more and more power to get bigger performances—as in the Zeppelin-Staaken and the big Junkers—the Germans are now improving their knowledge of aerodynamics without using any engines at all.

The Commission reached the apex of its silliness when last year it solemnly prohibited the construction of an experimental glider with a 4½ h.p. engine. As a result it has made it necessary for the Germans to produce still more efficient aeroplanes, so that soon they ought to be able to fly quite well with 10 h.p. to 20 h.p.

The real use of gliding or soaring experiments is of course the production of highly efficient aerofoils and bodies which when reproduced on a large scale will make it possible to carry big loads with very low horse-power. Therein lies the only possible method of making commercial aviation a paying proposition. The bar to success at present is the cost of engines and the huge petrol bills. Reduce these costs by carrying twice or three times as much load for the same power and commercial aviation will become truly commercial.

At present the petrol firms are the only people who make money out of aviation. Aeroplane and engine makers are running at a loss. Managers, pilots, engineers, mechanics and clerks of air lines are working at absurdly low wages, just to remain in aviation. But the petrol and oil firms get their full market price for everything they sell and make handsome profits, when everybody else is making sacrifices for the progress of flying. The petrol bill of almost any air line firm exceeds the wage-bill for the whole of its personnel.

If gliders help us to save power and petrol by producing more efficient aeroplanes then the hard work done by these glider enthusiasts will be more than justified.

In this connection it must be recorded that the first really big glides were made in 1908 or 1909 by Mr. Gordon England (now in the motor trade) and Mr. Gerald Leake (now an artist) on machines designed and built by the late Mr. José Weiss, an Alsatian who became a British subject. By sheer study and the use of a fine Teutonic intelligence Mr. Weiss produced a bird-form glider which in essence embodied all the most advanced ideas of to-day. It was a cantilever monoplane with high-lift wings washed right out to the tips, and it had an almost perfectly streamlined body.

A glider on precisely similar lines built to-day of modern materials and by modern constructional methods, with slight modifications in the controls would, one believes, beat any present-day performance. But Mr. Weiss's theories were neglected because, unfortunately, the advent of the Gnôme engine enabled people to fly on the most absurd box-kite, and so for ten years the intelligence of our designers was dissipated in refining box-kites when it ought to have been concentrated onto making a practical job of Mr. Weiss' ideas. Mr. Weiss could not afford to go on with his work, but to-day it is possible to see how much honour is due to that great neglected pioneer.

As a sport one has no great opinion of the future of gliding and soaring. It is too much like the Chinaman's description of tobogganing—"Goee like hell, walkee-back three-mile." And there is the added disadvantage that whereas it is not very hard work to "walkee-back three-mile" with a light toboggan it is the Devil's own job to haul a big glider up a mountain, not because of its weight, but because it is so awkward to handle and so easily broken. The beginner is not going to soar like Herr Hentzen, or like the Cockney's description of the lark "wot soars and soars and soars till 'e saws 'is bloomin' 'ead off."

Also, if gliding catches on among the class of youth who at present disfigures the sea-side by carving up the sand in the hopes of winning a newspaper prize there will be a very fine crop of broken necks. Which may improve the English race by eliminating the mentally half-baked, but will certainly cause a certain amount of sorrow among bereaved parents. For gliding is not a sport to be undertaken lightly. If anything it calls for more skill than ordinary flying, and soaring which is the ultimate development of gliding undoubtedly requires still greater skill than flying with an engine.

If such accidents occur in quantities there will be a certain humour in the fact that the newspapers which have most made a habit of booming aeroplane accidents are precisely those which are now doing most to boom gliding and soaring. If the demand exists for glowing descriptions of crashes they are certainly going the right way to work to create the supply.

Nevertheless the present little boom in gliding is quite a good thing, for it is making people think more about flying. The *Daily Mail's* offer of £1,000 prize this year and a £5,000 prize next year will keep the interest going and will act as ground-bait, so to speak, for the Air Estimates next year when the British Taxpayer is asked to find the money for something resembling an adequate Air Force.

After all the Air Force is the only thing that matters, and every little helps. Given a big Air Force properly equipped and handled by competent technical people—when some of the present incompetents have been dismissed—Civil aviation will as Mr. Churchill said fly by itself. And all this tamasha about gliding and soaring is one of the little things that will help.—C. G. G.

THE KING'S CUP.

The following are the entries for the Circuit of Britain Air Race for the King's Cup which will take place on September 8th and 9th. The name of the entrant appears first, followed by that of the pilot, the machine and engine appearing thereafter.

(1) His Grace the Duke of Sutherland, Capt. A. F. Muir. D.H.9 (230 h.p. Siddeley "Puma."

(2) Brig.-Gen. James G. Weir, C.M.G., Mr. C. T. Holmes. Boulton and Paul P.9 (90 h.p. R.A.F. 1a.)

(3) Mr. A. S. Butler, Mr. A. S. Butler. D.H.37 (275 h.p. Rolls-Royce "Falcon.")

(4) Lieut.-Col. F. K. McClean, A.F.C., F/Lt. W. H. Longton, D.F.C., A.F.C. Sopwith "Gnu" (110 h.p. Le Rhone.)

(5) Lieut.-Col. J. E. Tennant, D.S.O., M.C., Lieut.-Col

J. E. Tennant, D.S.O., M.C. Boulton and Paul P.9 (90 h.p. R.A.F. 1a).

(6) Mr. Douglas Vickers, M.P., J.P., Capt. C. Cockerell, A.F.C. Vickers "Vulcan" (350 h.p. Rolls-Royce "Eagle VIII.").

(7) Mr. J. D. Siddeley, C.B.E., Mr. F. T. Courtney. Siddeley "Siskin" (325 h.p. Siddeley "Jaguar").

(8) Mr. F. P. Raynham, Mr. F. P. Raynham. "Tinsyde" F6 (200 h.p. "Viper").

(9) Sir Samuel Instone, Mr. F. L. Barnard. D.H.4a (350 h.p. Rolls-Royce "Eagle VIII.").

(10) Lt.-Col. John Barrett-Lennard, C.B.E., Mr. H. H. Perry. D.H.9a (350 h.p. Rolls-Royce "Eagle VIII.").

(11) Lt.-Col. M. O. Darby, O.B.E., Mr. M. Maurice Piercey. D.H.9 (230 h.p. Siddeley "Puma").

(12) Sir G. Stanley White, Bart., Mr. Cyril Frank Uwins. Bristol 10-seater biplane (400 h.p. Bristol "Jupiter").

(13) Sir Henry White-Smith, C.B.E., F/Lt. R. A. de H. Haig. Bristol monoplane (100 h.p. Bristol "Lucifer").

(14) The Lady Anne Savile, F/O. Leslie Hamilton. D.H.9c (230 h.p. Siddeley "Puma").

(15) Sir William Letts, K.B.E., Mr. B. Hinkler. Avro "Baby" (35 h.p. Green).

(16) Mr. Henry Fildes, M.P., S/Ldr. H. Payn. Avro "Baby" (35 h.p. Green).

(17) Mr. A. V. Roe, Capt. F. C. Broome. Avro "Viper" (200 h.p. "Viper").

(18) Mr. John Lord, Major C. R. Carr. Avro "Lucifer" (100 h.p. "Lucifer").

(19) Capt. G. de Havilland, Mr. A. J. Cobham. D.H.9b (230 h.p. Siddeley "Puma").

(20) Mr. H. Scott-Paine, Mr. H. C. Biard. Supermarine "Sea Lion II." (450 h.p. Napier "Lion").

(21) Major J. C. Savage, Mr. C. C. T. Turner. S.E.5a (200 h.p. "Viper").

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THE DAILY MAIL £1,000 PRIZE FOR GLIDERS.

The following Committee has been appointed by the Royal Aero Club to draw up the regulations and proceed with the arrangements for the Gliding Competition :—Lieut.-Col. M. O. Darby, Lieut.-Col. W. A. Bristow, Mr. C. R. Fairey, Major O. T. Gnosspelius, Mr. W. O. Manning, Lieut.-Col. A. Ogilvie, Mr. F. Handley Page, Capt. W. H. Sayers, S/Ldr. M. Wright.

The Competition will begin on Monday, October 16th, and will close on October 21st, 1922.

STILL ANOTHER GLIDING RECORD.

It has been reported from Fulda, that Mynheer Fokker has stayed in the air for a period of 13 minutes with a passenger on a biplane glider of his own design and construction whilst taking part in the Rhön Gliding Competitions.

The *Central News* report states that Herr Fokker made evolutions in the air as daring as those he has made in a power-driven machine, from which one concludes that the reporter has never seen Herr Fokker or anyone else for that matter flying a power-driven machine. Doubtless he has translated the normal manoeuvres necessary to take advantage of upward currents, etc., into daring evolutions so as to make his report a little more powerful.

A MATTER OF RADIATORS.

British aircraft manufacturers who are still worried by the apparently aimless eccentricities of the Radiator Sub-Department at the Air Ministry will be interested to note that every aeroplane entered for the Deutsch Cup Competition is fitted with the Lamblin Radiator. It is curious that one comparative insignificant sub-department of the British Air Ministry should absolutely bar the use of the Lamblin type of radiator on Air Ministry machines despite the fact that, as is shown by the Deutsch Cup entries, all the greatest aircraft designers in the world are now convinced of the superiority of this type of radiator.

One gathers that one of the chief official objections to the type is the amount of piping necessary to connect the engine with the radiator, the idea being that this piping is very vulnerable to bullets. As a matter of fact when it comes to protecting radiators the Lamblin can be protected better than any other type by simply encasing it in a steel barrel, whereas the ordinary type radiator is the most vulnerable part of the whole aeroplane and certainly offers the biggest area both to fire from behind when a machine is attacked by chaser aeroplanes and to fire from the ground when emloyed as a ground strafer.

Of course one would like to believe that the particular sub-department of the Air Ministry which deals with radiators knows very much more about the subject than do all the world's aircraft designers. Unfortunately numerous experiences by practically all aircraft designers in this country have proved precisely the contrary. It is to be hoped that in due course under the new chiefs of the tetchnical side of the Air Ministry British constructors may be permitted to demonstrate, at any rate on experimental machines, that considerable improvements can be effected by fitting small efficient radiators instead of the heavy, inefficient and wasteful types at present imposed on them by the Air Ministry. When that time comes one would not be at all surprised to find the same unanimity in fitting the Lamblin type of radiator to war machines and commercial machines as is found at present among the designers of racing machines.

AIRCRAFT IN CHINA.

As is wetll known, except for a few inadequate thousands of miles of railway, transport in China is about as modern to-day as it was in the days of Confucius. There has been no change : so when the Chinese Government, brushing the cobwebs of centuries from her machinery of progress, formulated an elaborate scheme for an intricate and comprehensive system of air lines to cover the country like a net surprise was great, but the admiration at such a bold innovation was greater for it is well known that millions of Chinese have never seen or heard of a train yet.

The Aeronautical Department.

The Government some time back formed an Aeronautical Department, at the head of which was Col. F. V. Holt, seconded from the Royal Air Force, who, together with Col. Tscheng Hung, a keen aeronautical student, proceeded to conduct a preliminary reconnaissance of the ground between Peking and Shanghai, and the Cabinet, on their recommendation, then sanctioned a monthly subsidy of 40,000 dollars for the service.

The Purchase of Aeroplanes.

But unfortunately some trouble has occurred about the machines. Some years ago the Chinese Government purchased a number of machines, including Handley Pages and Vickers "Vimys" from the British Government, but the greater part of them were seized by two powerful provincial governors while the attention of the Government was directed elsewhere to political matters, and what is more, the Government are unable to recover them, having little or no authority over these Tuchuns, who rule their provinces like kings, keeping their own large armies and collecting their own taxes in open defiance of the Government.

The Thefts.

Details of these thefts are very amusing. In 1921 there was a split in the Government, which resulted in the defeat of the Anfu Club, a number of politicians and military leaders financed by Japan, and while this question was occupying everybody's attention, General Chang Tso-ling, Military Governor of Mukden, grabbed a number of machines, belonging to the Government and took them with him to Mukden, his provincial capital.

Most of the machines were damaged en route, for according to reports the Governor's quaint ideas of loading, coupled with his imperious and impatient temperament, led him to load the machines on the trains crossways and without dismantlement. The train was delayed, and after stamping and fuming with rage on the platform the Governor ordered the train to proceed at full speed. What happened is obvious. The machines failed to pass through the first railway bridge, and besides smashing the machines, the Governor's foolish act nearly wrecked the train.

The Other Robber.

The spoil of the other pillager, General Tsao Kun, was more valuable, and included several Handley Pages, some of which are still unpacked and are lying rusting and exposed to all kinds of weather at Paotingfu, his provincial capital. Both these amateur "Napoleons" have been asked by the Government to give up the machines, but the request

has been met with a stern refusal from both of them. Appeals to their national sentiment and patriotism have had no effect, and were not expected to have any effect because most of the Tuchuns, against whom is being waged at present a campaign for their abolition, care about nobody but themselves: a real patriot, unselfish, and not addicted to the common practice of "feathering his own nest," is hard to find among the official circles in China.

A Bandit Air Service.

It was next understood that the two Tuchuns had consented to allow the stolen machines to be used in running an air service between Paotingfu, Peking and Mukden, on the definite understanding that the machines should be operated from their respective capitals as bases, so they really did not give up possession. They seem to have adopted the motto: "What I have I hold," and seriously, putting all flippancies on one side, the administrative system in China is so bad that the Government are powerless to take the machines from them.

Somewhere in their arrogant and diseased imagination they have a rude impression of the value of the aeroplane as a military weapon, and their act of pillage seems to have behind it the conviction that these machines will be of positive value to them as military weapons, and they are sticking to them, for pseudo-militarism in China is a cult with many adherents.

The only course open to the Government is to offer a tempting bribe to see if their military enthusiasm can be assuaged by gold, and try to buy back the machines. The amount they will make, if they decide to sell, depends on the extent of their knowledge of aeronautical finance, and the gullability of the Government but in view of the fact that the Aeronautical Department has at the head a man like Col. Holt it seems that the Chinese Government will have to get new machines or use those they have left, for it is not to be for one moment doubted that the price asked will be anything like their real value. Unscrupulous Chinese officials generally work on the maxim that the price should not be calculated on the worth of the article, but on the peculiar circumstances of the action and the anxiety of the party to buy.

Later Information.

Aviation in China does not appear to be in exactly a flourishing condition. The Vimys and Handley Pages which were to be used for commercial air mail services in various directions from Pekin have not yet been allocated to regular work of that nature. A good deal of joy-riding has been done with some of the Vimys, which have been used particularly for conveying Chinese and other excursionists from Pekin to the Great Wall of China.

The political situation in China is so thoroughly chaotic that it is quite impossible to discover whether the various aeroplanes belong to the Government Army or to the Army of one or other of the various generals who have self-determined themselves as separate Powers. The Government Aerodrome at Pekin seems to be capable of keeping the various machines there in order, but has not apparently turned out any original work.

The Chinese Naval Dockyard at Foochow built two or three machines, either late in 1921 or early in 1922. These were built of entirely locally manufactured materials, though it is understood that the designer is an Englishman who was once employed with Short Brothers of Rochester.

So far as can be discovered, the materials used were Shantung silk fabric and bamboo spars and struts. The airscrews were of teak and the engines were Hall-Scotts, an American type.

Remembering the trouble which the late Mr. Cody had in effecting reliable junctions between bamboo and metal and the difficulty of preventing bamboo from splitting under compression strains the structure of these machines would hardly seem to inspire confidence. Also, teak sounds heavy for airscrews.

It is reported that the first machine built of this type was flown and crashed by a pilot named Tom Gunn, a San Francisco Chinaman. After his fortunate escape Mr. R. C. B. Hockey, of Brunner, Mond and Co., a former R.N.A.S. pilot, was persuaded to attempt to fly this latest species of Chinese dragon. In doing so he achieved considerable success, persuading one of them up to 11,000 feet. Altogether, he tested three or four machines without damage to anything except to the reputation of the afore-mentioned San Francisco Chinaman. As a result, the Chinese Dockyard people are immensely pleased and proceeded to build more.

The snag about testing these machines appears to be that if the test pilot happens to land anywhere outside the territory of the Naval Dockyard itself he *ipso facto* becomes with his machine the property of a local and extremely jealous rival General.

AN AMERICAN AIRSHIP SCHEME.

Some time ago there was notified the formation of the General Air Service Company, which is to build and operate Schütte-Lanz airships in the United States. One gathers that this is really quite a serious scheme, though some of the claims of the promoters sound more like hot air then genuine airship gas. It is undoubtedly a fact that Herr Schütte was recently in the United States, and it is stated on quite good authority that he has actually transferred all the Schütte-Lanz patents to the American firms. The American backers of the project are all reliable and honourable business men or financial people, therefore so far as they are concerned the scheme may be taken quite seriously

The proposals of the firm briefly are (1) to build Schütte-Lanz ships of duralumin tubing, (2) to perfect a process of producing Helium in large quantities as a commercial by-product or to sell the by-products of the manufacture of Helium for commercial purposes—apparently it is not quite clear which of these methods of producing Helium is the one on which the firm relies, (3) to develop heavy oil engines for airship use, and (4) to create by means of suitable propaganda an amount of passenger traffic which will make the airships pay.

It would certainly appear that the American backers of the concern have taken on a fairly big contract. The type of S-L airship which they propose to build is one which has never actually been built. The casual methods of the publicity man has apparently succeeded in conveying the idea that a three-million cubic foot S-L ship built of duralumin tubing was just completed at the time of the Armistice, but was immediately scrapped by the patriotic proprietors to prevent it and the secrets of its manufacture from falling into the hands of the Allies. If this story be correct it



THE SCHNEIDER CUP WIN.—In the centre of the group is the winner of the Schneider Cup, Mr. H. G. Biard, who after taking his certificate as an aviator over ten years ago has suddenly blossomed forth into international fame. On his right (in white) is Mr. Hubert Scott-Paine, the Managing Director of the Supermarine Aviation Works, Ltd., who with Mr. Vane of D. Napier and Son, Ltd., made it possible to produce the winning Supermarine boat with its "Lion" engine and send it to Naples

certainly increases one's respect both for the patriotism and the promptitude of the good Germans. It is even said that there are members of the Inter-Allied Aeronautical Commission who honestly believe the story. Unfortunately there is still more convincing evidence from Germany that in fact such a ship never actually existed. Its designs were apparently completed, but the only actual material for its construction which ever existed were test pieces of the special duralumin tubing which it was intended to use.

Another snag in the way of success is the Helium question. It is quite possible that somebody somewhere some day may invent a method of producing Helium in large quantities either as a by-product or as a primary manufacture the by-products of which have a marketable value, much in the same way as petrol at one time was a valueless by-product of heavy oil which was given away, whereas now petrol is the primary product and the heavier oils are by-products from it. But at the present moment Helium is, so to speak, worth a guinea a box, and one believes that it would take quite a long time at the present rate of production to fill an airship of S-L dimensions.

There is some talk of a non-inflammable gas called Currenium, which is alleged to have been invented by somebody who comes from the movie section of California. Possibly Currenium may, in fact, be a rival of Helium, but if so it is strange that the existence of such a gas should not be suspected by the great scientists of Europe and that there should not be a vacancy in the scale of elements to account for its existence. At the same time it is equally possible that the accuracy of the statement from movie land is about on a par with the accuracy of historical events as portrayed by American producers.

It is natural that for the sake of their possible passengers the American S-L people should make much of the non-inflammability of their proposed ships, but one suggests that an airship full of non-inflammable gas, but with some thousands of gallons of petrol in the keel, would have little to recommend it as against a hydrogen filled ship with heavy oil engines which might conceivably blow off a cylinder head and set light to the hydrogen. It would seem, therefore, that the success of the line, in fact, rests on the simultaneous production on a commercial basis of non-inflammable gas and a satisfactory light engine capable of using heavy oil. One is quite convinced that American and German ingenuity in combination are capable of producing these two desiderata and therefore one is quite prepared to see the new air line achieve the success which one wishes to it.

DIAMONDS IN THE AIR.

A development in air transport in the Belgian Congo is reported in the *Times of India*, in connection with the working of the diamond mines at Djoko-Punda, in the Kasai Province, Belgian Congo.

At present the journey by boat along the Kasai and Congo rivers between the mines and Kinshasa, a distance of 500 miles, takes about 35-40 days, whereas by aircraft the journey would occupy about 2 days.

The Forminière Co., which hold the concession for the diamond fields, has, therefore, requested the Syndicat National pour l'Etude des Transports Aeriens (S.N.E.T.A.), who are already running a flying-boat service with Levy-Le Pen boats between Kinshasa and Stanleyville, to study the route along the rivers Kasai and Congo, with a view to establishing a regular air service between Kinshasa and the diamond mines.

PECULIAR MATHEMATICS.

Under the above heading a short editorial note appears in *Aviation* concerning the performance of the "Bamel." The point raised concerns the rules laid down by the F.A.I. for the World's Speed Record, which provides for four runs (two in each direction) to be covered over a kilometre course.

The official World's Speed Record was admittedly held by M. Sadi Lecointe on the Nieuport "Sesquiplan," which record, incidentally, was not homologated at the time of Mr. James' attack on the record at Martlesham. The claim to which offence is taken is that the "Bamel" is the fastest aeroplane in the World, and it is said that the *best* of four kilometre runs should not be compared with the *average* attained over four laps.

In making the claim that the "Bamel" is the fastest aeroplane in the world very little mathematical juggling is involved, as so long as no other aeroplane has been known to exceed 212 m.p.h. in a flying kilometre, then 212 m.p.h. is naturally the fastest speed at which any aeroplane has flown, and incidentally officially and electrically timed (not stop-watched) to have flown. No claim has been made that the "Bamel" holds the World's Speed Record.

"After all," as *Aviation* says, "the intelligent reader generally is his own judge of aeroplane performance," so that the length of French kilometres or American miles does not enter into the question at all. Therefore England can still make the claim that the Gloucestershire Aircraft Co.'s "Bamel" is not only the fastest aeroplane, but the fastest thing, barring projectiles, in the World.

SPURS IN THE R.A.F.

While in the vicinity of Weybridge recently one noticed an R.A.F. airman wearing spurs! One has heard the R.A.F. described as "the cavalry of the air," and this, presumably, is why! As to the probable use of spurs in the R.A.F., one is puzzled. Perhaps a new method of attack on non-rigid airships and the like is contemplated.

Doubtless, à la Heath Robinson, the airman, while suspended from an aeroplane "hovering" (as the daily Press will have it) over the "gasbag," will trail his heels (and his spurs) along it, and so tear the envelope and compel the airship to descend rapidly. Or when his machine lands and he is in danger of running into a fence the pilot will swing his legs out of the cockpit (in one motion, heels together, feet at an angle of 45 degrees), hanging on to the machine by the edge of the cockpit, dig his spurs smartly into the ground, and so slow down the 'bus, putting the spurs to an entirely original use. One would suggest that extra large rowels would be necessary.

This would be a blow to designers of air-brakes, claw skids, variable camber, and the like. Perhaps the airman may wish "to prick the sides of his intent," like Macbeth, and achieve promotion.—J. F. S.

POLISH ACTIVITY.

A telegram from Danzig reports that during a military bomb-dropping exhibition by an aeroplane on the Polish aerodrome at Putzig, a bomb from one of the machines fell into a crowd of eight hundred spectators and exploded. Ten persons were killed, and 50 others more or less seriously injured

Which is exactly what one would expect from Polish Administration.

ANTI-AIRCRAFT DEFENCE.

The War Office announces that arrangements are now almost completed for the raising of the Royal Artillery and Royal Engineers Anti-Aircraft units and the Signals Company of the two London Air Defence Brigades which are to form part of the Territorial Army, and to be known provisionally as the 2nd and 3rd London Air Defence Brigades.

Recruiting will be opened shortly. Meantime, those who wish to serve in the new formations should make application in writing to the Headquarters, Air Defence Brigades, 145, Sloane Street, W.

Each of the Air Defence Brigades will consist of a Headquarters, two Anti-Aircraft Brigades, R.A., an Anti-Aircraft Battalion, R.E., and an Anti-Aircraft Signal Company which will handle respectively the guns, searchlights and telephone communications for defence work, as organised so successfully when General Ashmore commanded the London Air Defence Area.

The Air Defence Brigades will be administered by the County of London Territorial Army Association, except in the case of the two Anti-Aircraft Brigades, R.A., of the 3rd Defence Brigade, which will be administered by the City of London Territorial Army Association.

R.A.F. CRICKET.

The R.A.F. met a very strong side of the Civil Service at Leyton on August 17th and 18th. On a perfect wicket and under pleasant weather conditions, over 1,000 were scored in two days, resulting in the Civil Service winning a keenly contested game by 6 wickets.

The R.A.F. batted first, and by very even play right down to and including the last wicket, compiled 245 runs by the tea interval. F/O. Wigglesworth contributing 52 runs. The Civil Service then scored 136 runs for one wicket.

On resuming play on Friday, Musson (Lancashire), and Rippon (Somerset), became thoroughly set and brought the total to 231 runs for two wickets, when the former was out l.b.w. after a very fine innings of 76 runs. At this point of the game the task for the R.A.F. looked very formidable until Grp/Capt. MacEwen went on with "lobs," and secured five wickets for 39 runs, excluding the 17 knocked off him the previous day. At the lunch interval the Civil Service declared with eight wickets down for 320 runs.

After lunch the R.A.F. gave a very spirited display of batting, scoring 258 runs for the loss of six wickets, in 2 hours 25 minutes. S/Ldr. Blount (137) and F/Lt. Thornton (69), made a fine stand of 160 runs for the fourth wicket. The R.A.F. declared leaving their opponents 184 runs to get in 1 hour 40 minutes.

The Civil Service opened finely with Hurst and Tasker, but the former was dismissed for 19 by a wonderful catch by Adams off MacEwen. On the stroke of 7 o'clock Blaker, who batted very forcibly for 74 not out, scored a four, which gave the Civil Service the victory by six wickets.

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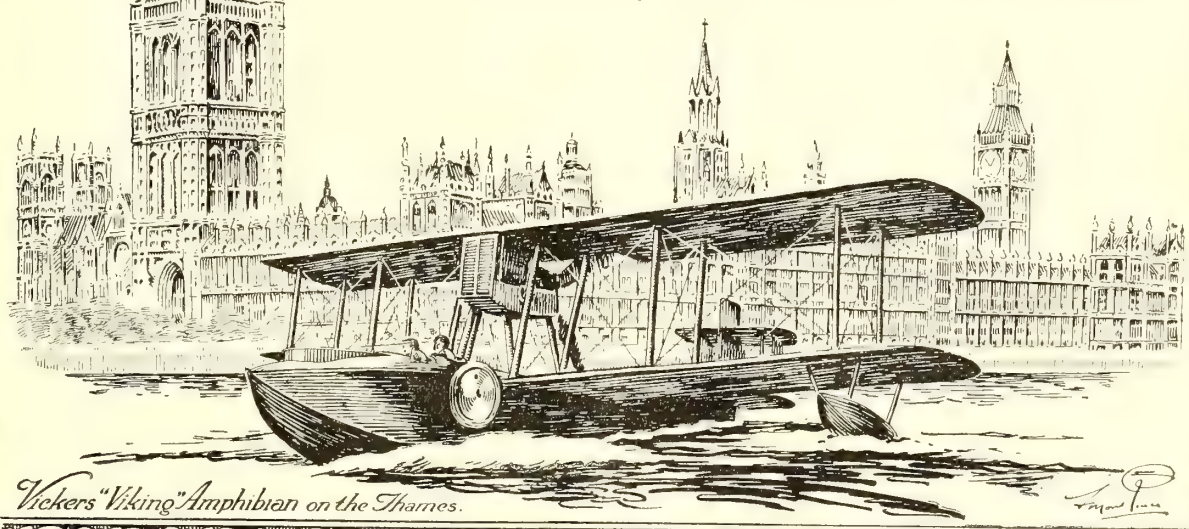
The Vickers "Viking" was the winner of the FIRST prize of £10,000 for the Amphibian Class of Aircraft entered for the BRITISH AIR MINISTRY COMPETITION, September, 1920.

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Vickers "Viking" Amphibian on the Thames.



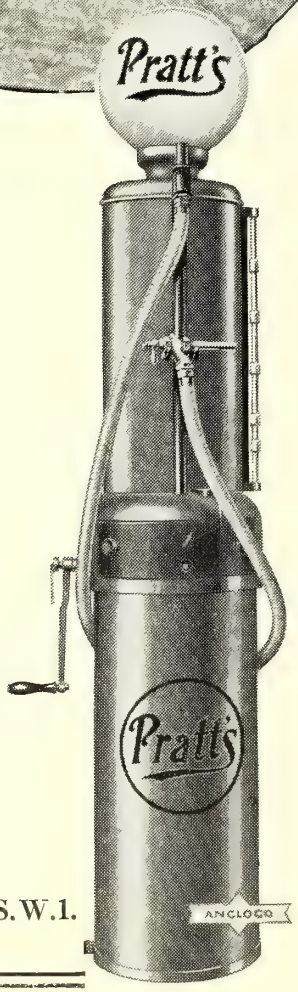
Photo by J. T. Roberts, Croydon.

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THE WEEKLY COMMENTARY.

The Civil Aviation Advisory Board, appointed at the time of the London Air Conference to advise the Air Ministry on the development of Civil Aviation, has just issued a report on the possibilities of an Air Mail Service to India.

This report is in places distinctly interesting. It contains many confessions of ignorance, several reasonable suggestions, and one which is distinctly unreasonable. This, which is no less than that a large programme of research be carried out before any practical experiments are made, is discussed below.

———

Gliding and soaring experiments have been much in the public eye. The competition held in France has produced little in the way of startling flights, but it has shown that under suitable conditions as to wind and slope relatively unpromising machines are capable of climbing above the start and keeping their altitude for appreciable periods.

The first few days of the German contest at the Rhön produced no flights of much greater duration than those made in France

But on August 16th the weather conditions seem to have changed and Martens made a flight of nearly 20 minutes. On the 18th the same pilot flew over one hour, on the 19th Hentzen flew two hours, and reports just to hand state that the latter pilot has now exceeded 3 hours.

These performances have aroused much interest throughout the world, and have moved the *Daily Mail* to offer an immediate prize of £1,000 and to promise a still larger one next year for the best performance of the kind in this country.

THE FIRST REPORT OF THE CIVIL AVIATION ADVISORY BOARD.

BY W. H. SAYERS.

At the last London Air Conference it was announced that the Air Ministry had appointed a Civil Aviation Advisory Board "to advise generally on the development of Civil Aviation, and to report upon any specific point which may from time to time be referred to the Board by the Secretary of State for Air."

This Board has the following composition :—The Under-Secretary of State for Air (Lord Gorell, C.B.E., M.C.), Chairman; The Director of Civil Aviation (Maj.-Gen. Sir Sefton Brancker, K.C.B., A.F.C.); The Director-General of Supply and Research (Air Vice-Marshal Sir W. G. H. Salmond, K.C.M.G., C.B., D.S.O.); Brig.-Gen. F. H. Williamson, C.B., C.B.E. (representing the Post Office); Mr. J. C. McBride (Accident Offices Association); Mr. G. Holt Thomas (Air League); Mr. Stanley Machin. J.P. (Association of British Chambers of Commerce); Mr. H. James Yates (Federation of British Industries); Sir W. Joynson-Hicks, Bart., M.P. (Institute of Transport); Lt.-Col. Sir Frederick Hall, K.B.E., D.S.O., M.P. (Lloyd's); Brig.-Gen. Sir Capel Holden, K.C.B., F.R.S. (Royal Aero Club); Lt.-Col. Mervyn O'Gorman (Royal Aeronautical Society); Sir Henry White-Smith, C.B.E. (Society of British Aircraft Constructors); and Mr. F. G. L. Bertram, C.B.E. (Secretary).

As a first subject for their deliberations the Secretary of State referred to the Board the question of the cost and practicability of an Imperial Air Mail Service, and a report on this subject has just been issued and published by H.M. Stationery Office. It is noted upon this publication that "No expenditure has been incurred in connection with this report other than the cost of printing and publishing, which is estimated by the Stationery Office at £48 10s."

The complete report consists of a general consideration of the subject of air mail services, a detailed discussion of the Indian route, and a series of appendices.

AEROPLANES ALONE CONSIDERED.

Aeroplane services are alone considered, as the airship scheme, submitted by Commander Burney, was understood to be under consideration by the Air Council and the Treasury, and in view of the Prime Minister's statement that it had been decided that no money could be expended in developing an airship service, no reference is made to such a scheme throughout the report. This is distinctly regrettable, for to anyone who believes in the value of airships for long-distance services there will be an immediate tendency to assume that the Board have merely taken a convenient excuse to neglect claims made for the airship which they find it difficult to refute.

One can quite appreciate that any attempt to adjudicate as between the aeroplane and the airship for this particular service would have rendered their task even more formidable than the more limited one which they have undertaken and that they might quite properly have reserved consideration of the alternative type of craft till such time as they could acquaint themselves with the case for the airship scheme. Their present somewhat curt dismissal of the subject will serve only to add to the suspicion, firmly rooted in the minds of many airship advocates, that there is a strong official prejudice against lighter than air aircraft and that no impartial consideration of their utility is to be permitted.

The Board are greatly impressed by the complexity of the problem presented to them, and record their unanimous opinion that general considerations of a National and Imperial character must outweigh in importance any purely commercial considerations.

This on the grounds that (1) machines, pilots and personnel engaged on Imperial mail services will form an additional reserve capable of rendering assistance in case of war : (2) that the production of the necessary aircraft will keep in being factories and designing staffs which will be needed in emergencies, and (3) that generally the Imperial importance of rapid communications makes it necessary to develop as rapidly as possible the new method of transport.

Therefore the Board holds that any civil undertakings making efficient efforts to keep open Imperial Civil Airways are entitled to look for financial assistance from the Government until such time as they are established on a sound financial basis.

The general objections to subsidisation are recognised and dealt with at a later stage in the report.

THE NEED FOR MORE ADEQUATE DATA.

Stress is laid on the inadequate data which is available from existing machines and services for making reliable estimates on a long route, through varied climates. It is pointed out that the most economic type of machine over such a route as is considered may vary along different sections, and that technical investigation into such problems as are involved in the design of suitable aircraft, in the choice of length of stages, of methods of navigation, of meteorological organisation and so forth, is necessary.

Accordingly, the Board recommend the reference to the Aeronautical Research Committee of the technical and scientific problems involved, together with the provision of a fund which will allow the Committee to carry out such experimental work, both model and full scale, as may be required.

Research as a Substitute for Experience.

In this connection an Appendix by Lt.-Col. Mervyn O'Gorman details certain examples of the class of problem to be investigated. In this Appendix Col. O'Gorman recognises two widely different standpoints, the one which claims "that the best way to start is simply to begin," and the second which claims that the aperation of an Aerial Mail is just as much an engineering and scientific enterprise as the building of a great bridge and one demanding the determination of adequate data before forecasts of success can be warranted.

Among urgent matters which are considered fit subject for scientific investigation are put (*a*) economy in capital and overhead charges; (*b*) economy in pilots; (*c*) economy in regard to non-paying load, fuel, oil, etc. Also as an argument for thorough scientific investigation is urged the importance of our getting first into the possession of the premier technical position in regard to self-supporting aerial transport

As regards the bearing of scientific work on these apparently purely commercial problems it is pointed out that the solutions are bound up with technical problems. For example, taking (*a*) economy in capital and overhead charges, increase in the length of stage flyable by the machine used will mean a more expensive machine, but appreciably fewer landing stations, and a reduced personnel. There is some best length of stage and this requires determination before the stations are laid out.

Then in regard to (*b*) economy in pilots, the longer stage will call for fewer pilots, and the reduced number of landings will reduce risks of damage to machine. There is a limit, however, for if the stage is so long as to fatigue the pilot the machine is endangered and the costs will increase.

Then there is the general effect of speed on costs. Increased speed means increased fuel consumption and reduced useful load. But it means an increased distance before the pilot's fatigue limit is reached, and so saves aerodrome costs as under (*a*).

In addition to such problems are mentioned certain more definitely technical ones, such as the reduction of noise, vibration and the strain of keeping a correct course, and the decrease of landing speeds, commercially important as reducing the strain on pilots and so making them cheaper. Incidentally the same improvements will increase the revenue and decrease insurance costs.

These are but a few of the subjects which Col. O'Gorman thinks should be referred to the Aeronautical Research Committee for consideration before taking steps to set an Air Mail Service in operation.

Science and Commercial Questions.

With a very great regard for Col. O'Gorman's mental ability, and an even greater regard for the importance of full scientific investigation of all the many outstanding problems involved in the successful operation of such a service as is here considered, one must very profoundly disagree with him in this view. The commercial problems involved are not ones which any conceivable Sub-Committee of the Aeronautical Research Committee can deal with as a whole. If we are to wait till the proposed sub-committee has solved them there never will be any Air Mail Service.

All the problems as to best length of stage can be solved by any reasonably intelligent person given full particulars. The real commercial problems involved are, however, not very simple—because the necessary particulars are not and are never likely to be available until practical experience has supplied them.

Theoretically we may arrive at the conclusion that with a given load and the best available machine 500 miles represents the best length of stage. But suppose 500 miles from the starting point lands us in open country far from any town, while two approximately 300 mile stages will allow us to call at two important business centres, or one 600-mile at one only.

What is to determine the choice between the alternatives, either of which will increase the costs of the service? Obviously only a consideration of the probable extra traffic to be gained by calling at one or both of the alternative halts, and an estimate of whether or not the increase of revenue in either case will outbalance the extra running costs.

Experience as Necessary as Research.

What qualifications has the Research Committee to settle this or similar problems? It has none. Neither, for that matter, has anyone else. And until a reasonable volume of experience has been accumulated as a guide to such practical problems, theoretical discussion of best length of stages, etc., is of little use to anybody. For the characteristics of the required machine are bound up with stage length. Having determined a theoretical best stage length necessarily means assuming a best machine for the load and for that stage. That will not necessarily be the best machine for a different length of stage or for a different load. Thus purely commercial considerations govern technical requirements, and the commercial data is necessary to state the technical problems.

If any one aerodrome cost just as much to build as any other, if the cost of staff were the same throughout the world, if accessibility from centres of population had no influence on the value of an aerodrome when it was built, and if revenue were of no importance, the present writer could guarantee closely accurate solutions to quite a number of the problems which Col. O'Gorman desires to have investigated before practical operations are begun. But realising that those solutions are of academical interest only, and being under the necessity of acquiring some revenue for his own purposes, he does not propose to undertake the task.

The data necessary for a useful solution of problems of this type can be acquired by a process of trial and error—not otherwise. At some time or another the process of trial must begin, and when it has, the promoters of the trial will find plenty of errors in their original programme.

But one would be fairly safe in asserting that a programme initiated by persons who stand to lose money as a result of the errors therein contained will be less certain of failure than one drawn up by a disinterested body of that curiously unworldly mentality which is the distinguishing feature of Official Technical Committees.

There is plenty of work for the Aeronautical Research Committee, and it is fervently to be hoped that they will stick to it. But for goodness sake let them leave commercial problems to those who know something about commerce.

The present trouble with commercial aviation is less that the aeroplane does not function than that it fails to earn revenue. It is quite possible that it will be necessary to modify the performance of the aeroplane before it can overcome this failing. But it is for the commercial people to discover what changes in performance are necessary and for the Research Committee to discuss and discover how the necessary improvement can be effected.

Col. O'Gorman seems to believe—and the Board in this matter to agree—that the Research Committee can lay down the law as to how an Air line should be operated, and that all that remains on the commercial side is to obey Technical Orders and pocket the receipts. It is not easy to accept this view.

(To be continued.)

THE RUNNER-UP IN THE SCHNEIDER CUP RACE.

The photograph here reproduced shows the Savoia 51, flown by Passaleva, which finished second in the race for the Schneider Cup at Naples.



The machine was built to the design of Ing. Marchetti, late of the Vickers-Terni firm, specially for racing purposes. In the race it was seriously handicapped by the fact that the airscrew unstuck some of its laminations, vibrated horribly and threatened to tear the engine out of the machine. Nevertheless it maintained an average speed of 229 km. h. (141 m.p.h.).

The main dimensions, etc., are :—

Span (top), 10 m. (Bottom), 4 m
Chord (top), 2 m.
Surface, 23 sq. m.
Length, 8 m.
Height, 25 m.
Weight, empty, 780 kg.
Fully loaded, 1,080 kg.
Wing, loading, 47 kg. per sq. m.
Engine, Hispano-Suiza, 300 h.p.
Power, loading, 3.6 kg. per h.p.

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ENGLAND TO SOUTH AFRICA—6,281 miles.

ENGLAND TO SWEDEN *(and back)*—2,450 miles.

ACROSS THE SOUTH ATLANTIC—3,822 miles.

ENGLAND TO CONSTANTINOPLE—2,160 miles.

ENGLAND TO FINLAND—1,100 miles.

ENGLAND TO WARSAW—1,050 miles.

"The first **International Air Reliability Trial** ever held has just been completed at Brussels, and has been **won by a Handley-Page** machine fitted with two **Rolls-Royce engines** The machine scored 100 per cent. marks for take off, speed, climb and weight carrying."
Evening News, 30/6/22.

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GLIDING IN GERMANY AND FRANCE.

The Rhon Meeting.

The opening days of the Rhön meeting from August 9th to 15th were marked by unsuitable weather. Flights of some sort appear to have been made by various machines, but the competitors and spectators evidently did not regard them as being worthy of record.

On August 16th Martens on the Hannover "Vampyr" made a flight of 18 m. 45 secs., including figures of 8 and circles.

On August 18th Martens, on the same machine, made a flight totalling 1 hour 6 minutes, in which he passed over the starting point at 100 m. and flew a further 12 km. landing near Lütters. A little later Herr Bosch, of Darmstadt, flew for 20 minutes.

On August 19th Hentzen, a fellow worker of Martens, on the same Hannover flew for 2 hours and ten seconds, crossing the starting point after 1 hour and 45 minutes in the air and landed near Lütters, close to Martens' landing of the evening before.

On August 24th Hentzen made a flight of over 3 hours, starting apparently from below the top of the Wasserkuppe, and landing on the top—higher than he had started. Bosch on the Darmstadt machine carried out a similar performance, landing above his starting place, and Hackmann, also on the Darmstadt, landed 300 metres above the starting point.

Many other flights have been made, but they have not been considered to be worthy of detailed record by those present.

The competition is however to be extended into September instead of closing on August 24th.

The French Competition.

Since the flights recorded in last week's issue, the following are the most noteworthy performances at the Puy de Combergrasse.

August 18th.—Casale, on a de Monge monoplane, crashed after a glide. Thoret, on a second de Woitine monoplane, made one short flight, and a second which terminated in a crash.

August 19th.—Boussotrot, on the Farman "Moustique," held the air for 5 m. 18 seconds, remaining at or above starting level for 3 m. 50 seconds. Coupet, on his own design of monoplane flew 4 m. 50 secs., rising to 50 m. and remaining at that height 2 m. 55 secs.

The meeting at Puy de Combergrasse terminated on this day, but certain competitors were to be permitted to glide from the Puy de Dome for the prize presented by the City of Clermont Ferrand. On August 21st Douchy on a Henry Potez made a trial glide of 9 minutes from the new point, but so far no reports of other flights from this spot are to hand.

The prizes for the meeting have been awarded as follows :—Longest single flight : 1st, Farman monoplane (Boussotrot), 5 m. 18 secs. 2nd, Coupet monoplane (Coupet), 4 m. 50 secs.; Greatest total duration : 1st, Farman biplane (Boussotrot and Paulhan), 49 m. 55 secs. 2nd, Farman monoplane (Boussotrot), 48 m. 55 secs. 3rd, Chardon monoplane (Chardon), 34 m. 15 secs. Greatest height : 1st, Farman monoplane (Boussotrot). 2nd, Coupet monoplane (Coupet). Least rate of descent : 1st, Farman monoplane (Boussotrot), 0.41 m. per sec., 2nd, Coupet monoplane (Coupet), 0.63 m. per sec.

THE GERMAN SOARING RECORDS.

Both Martens and Hentzen in their long flights used the Hannover "Vampyr" glider, which is the machine flown by Martens at last year's meeting but with some modifications. This original machine has been illustrated in past numbers of The Aeroplane on several occasions. In particular a scale drawing was reproduced in the issue of March 15th, 1922.

The 1922 "Vampyr" differs from the 1921 edition in that a warp control is fitted in place of the original ailerons. The wings are of a thick section, of uniform chord for more than half the span, but of considerable taper towards the tips. The wing is mounted on the top of a more or less rectangular section fuselage, which is set with its centre line inclined at a large angle to the wings—so giving a large angle of incidence to the wings when on the ground tail down, without the need for any projecting undercarriage.

The landing gear consists of three objects resembling footballs in form and construction, except that they are provided with a passage from pole to pole permitting the insertion through them of an axle. These are mounted so that about one-half of each projects through the bottom of the fuselage, one of them centrally under the nose of the pilot's body, the other two side by side a little aft of the pilot's seat, vertically below the wing, and about halfway back along the chord.

Designed by students at the Hannover Technical Unrversity the machine was built by the "Hannover Waggonfabrik."

The machine is of 12.6 m. (42 ft. 6 in.) span, chord, centre, 1.45 m. (4 ft. 9 in.), chord tips 0.95 m. (3 ft. 2 in.), wing area 16 sq.m. (172 sq. ft.), length 5.1 m. (17 ft. 1½ in.), height 1.22 m. (4 ft. 2 in.), and weight empty 120 kg. (264 lb.), and fully loaded about 200 kg. (440 lb.). The wing loading is 12.5 k.g. per sq. m. (2.72 lb. per sq. ft.)—which is a rather high figure for such a machine and may be taken to indicate that the machine must have an extremely good gliding angle to have been able to accomplish the remarkable results obtained.

The first of the big flights this year was made by Martens on Friday, 18th. After taking off the pilot made 8 figures of 8 and a closed circuit, crossed his starting line after 43 mins. at a height of 100 metres and then flew 12 km. at a height of 150 to 60 metres, landing near a village called Lütters.

At about 5 o'clock on Saturday afternoon Hentzen on the same machine took off from the Wasserkuppe in a wind of 6-8 metres per sec. (14-18 m.p.h.) The machine flew in circles and figures of 8 in the neighbourhood of the start. After 45 minutes it was 300 metres over the starting point. The wind by this time had fallen to half its previous value and the height decreased, to 120 metres at 66 min. and 75 metres at 90 minutes. The starting line was crossed at about this latter height, and 2 hours and 3 secs from the start Hentzen landed also near Lütters, 13.6 km. (9 miles) to the west of the Wasserkuppe.

A German expert expresses the belief that the duration of future flights of this type will be limited only by the duration of a suitable wind and possibly by the hunger of the pilots.

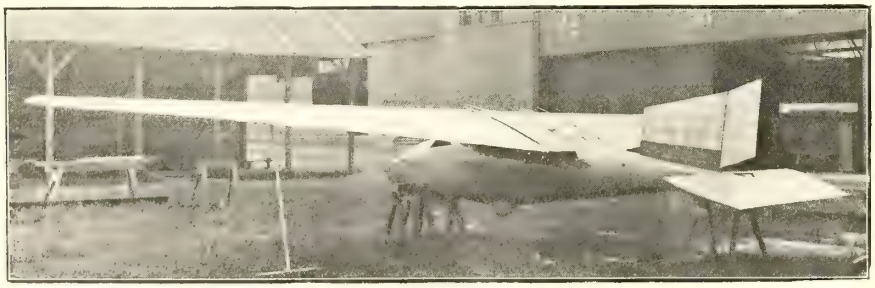
THE "DAILY MAIL" AND GLIDING.

On the morning of Wednesday, August 23rd, the *Daily Mail* announced the offer of a prize of £1,000 for the longest duration of gliding flight to be made in England during the month of September, provided that a duration of not less than 30 minutes be secured. The flights are to be made from a specified place, not yet settled, and according to the preliminary announcement on a specified date.

The actual rules and regulations are to be drawn up by the Royal Aero Club, and entries are to be made thereto. The event is open to the world. It is also announced that a larger prize for a more exacting test will be offered for competition during next year.

All those who have been interested in the remarkable performances of the German gliders during the past two years will be gratified at the announcement that some encouragement is at last being offered for similar attempts in this country. It is fairly obvious that the preliminary announcement has been drafted in some hurry, and one must hope that the suggestion that the test in the first competition is to be confined to one day will be modified.

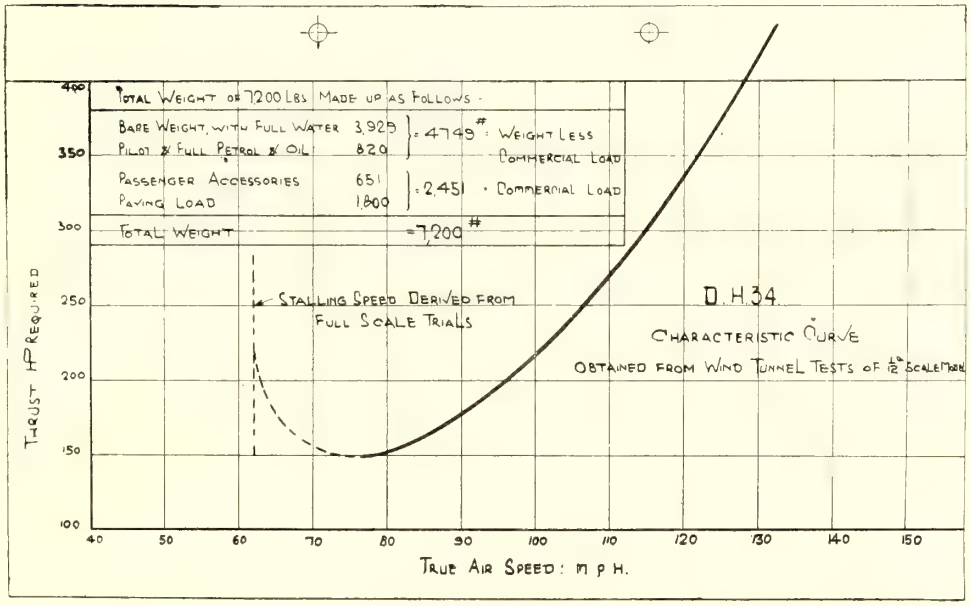
It is perfectly certain that the performance of even the best pilot on the best glider is limited by the prevailing wind conditions and their relation to the particular features of the neighbourhood in which the flight is made, and the



THE RECORD GLIDER.—The Hannover "Vampyr," flown by Martens and Hentzen in flights of one, two and three hours' duration. The photograph shows the machine after warping wings had been substituted for the original ailerons. The photograph was taken at the Hannover Waggon-Fabrik Works.

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odds against suitable weather occurring on a specified date at a specified place are distinctly great. Doubtless the Royal Aero Club will be able to put this aspect of the case to the donors of the prize and secure that the competition shall remain open for a reasonable period, say a week.

If this concession be granted then it is fairly reasonable to expect that the prize will attract at least one or two of the German experts and that their performances will give British gliders useful data whereon to prepare for the further contest which is promised.

Unfortunately, owing partly to lack of any experience and still more to lack of any money, it is not likely that any British entrant will be able to complete the qualifying 30 minutes in this contest—particularly as a machine would have to be built and tested in less than a month.

[Later notices show that the tests will be held in October and are to extend over several days.—Ed.]

A Gliding Club.

In connection with gliding generally, the *Daily Mail* announced on the same day as the offer of its gliding prize (August 23rd), that "practical steps were taken yesterday in the formation of a British air sailing club, the members of which will emulate and, it is hoped with practice, excel the Germans. Among those interested in the new club are Lt.-Col. A. Ogilvie, Mr. F. Handley Page, Mr. Frank Courtney, Lieut.-Col. P. Nicholl, Major O. T. Gnosspelius, S/Ldr. M. E. A. Wright, Mr. F. G. T. Dawson, and Capt. W. H. Sayers."

The announcement proceeds to suggest that all interested in the project should communicate with the Secretary of the Royal Aero Club.

This particular piece of information may be regarded as among the most surprising of the *Daily Mail's* "intelligent anticipations." All those whose names are mentioned are interested in the subject, and may fairly certainly be expected to do everything in their power to promote experimental and sporting gliding in this country.

Certain among them have for months past discussed the problem of how such experiments were to be initiated in this country, but as a matter of fact the first news that the great majority of them can have had concerning the "Air Sailing Club" was contained in the above-mentioned announcement in the *Daily Mail*.

The Secretary of the Aero Club had not before heard of it, two at least of those named as interested were not within reach for consultation at the time when the announcement must have been written, and the only communication that the present writer has received was an enquiry from a well-known aeronautical correspondent of the *Daily Mail* as to his correct initials.

Nevertheless he must express his very sincere thanks to the *Daily Mail*. For more than a year past he has been endeavouring to find some method of getting practical support for gliding experiments without many signs of success.

The *Daily Mail* has stepped nobly into the long-open breach, it says there is a Gliding Club and one may fairly safely take it that there will be one in consequence.

And if the *Daily Mail* is as correct as regards the willingness of the other people named to take part in the new club's activities, there is not any great doubt that the progress of gliding in England will be rapid.—W. H. S.

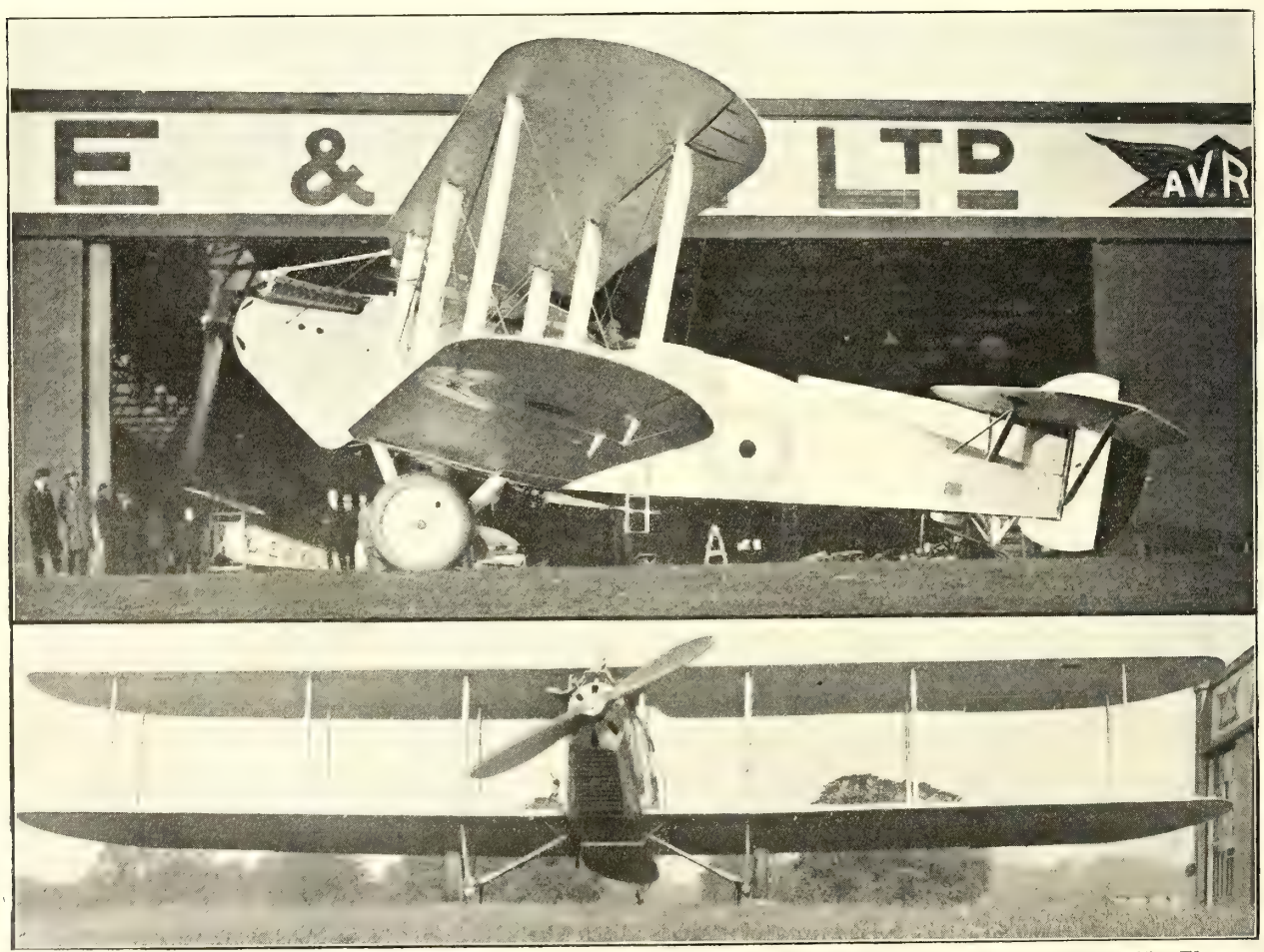
ANOTHER B.T.H. SUCCESS.

The list of B.T.H. successes continues. The latest news to hand is that the British Thomson-Houston Magneto provided the ignition for the Napier "Lion" engine in the Supermarine seaplane which won the Schneider Cup at Naples on August 12th.

It does not seem so very long ago since no engine was considered respectable unless it had either a French or a German magneto, preferably a German. It is therefore of some considerable interest in these days to see that not only are British magnetos invariably used on our aircraft engines but that they enable us to win great International events.

WANTED—AN "X" CHASER.

A well-known aircraft designer, at present on the Continent of Europe, would like to get in touch with a young British aircraft engineer who is used to doing calculations of aircraft stresses, in accordance with Air Ministry methods. The salary would be about £5 10s. per week, as a start. An unmarried man would be preferred. Applicants are invited to communicate, in the first place, with the Editor of The Aeroplane.



THE BIG BOMBER.—Side and Front Views of the Avro "Aldershot" bomber (Rolls-Royce "Condor.") The men standing in line with the machine and the Avro "Baby" just behind them give some idea of the huge size of the machine.

COMMERCIAL AERONAUTICS.

The London Terminal Aerodrome.

CONTINENTAL ARRIVALS AND DEPARTURES.

ABBREVIATIONS:—A.D.—Aircraft Disposal Co. B.A. Berkshire Aviation Co. B.C.—Bristol Aeroplane Co. C.A.—Department of Civil Aviation. D.A.—Daimler Airway. D.H.—De Havilland Aircraft Co. G.E.—Compagnie des Grands Express Aeriens. H.P.—Handley Page Transport Ltd. I.L.—Instone Air Line. K.L.—Koninklijke Luchtvaart Maatschappij. L.A.—Leatherhead Aviation Services. M.A.—Messageries Aeriennes. M.W.—Marconi Wireless Telegraph Co. Ltd. P.O.—Privately owned. W.A.—Westland Aircraft. S.F.—Surrey Flying Services.

ANALYSIS OF FIGURES

FOR WEEK ENDING AUG. 27th.

Number of trips made during week.—I.L. 31, H.P. 30, D.A. 37, M.A. 38, G. E. 11, K.L. 24, S.F. 2, D.H. 3.

Number of passengers carried.—I.L. 167, H.P. 227, D.A. 119, M.A. 37, G.E. 48, K.L. 36, S.F. 4, D.H. 4.

Total number of trips by British machines: 103 carrying 521 passengers.

Total number of trips by foreign machines: 73 carrying 121 passengers.

Trips per day—Monday 30; Tuesday 29, Wednesday 26; Thursday 28; Friday 27; Saturday 27; Sunday 9.

STATISTICS.

Machines, 176; Passengers, 642; Crews, 303; Total Personnel, 945.

Corresponding week last year:—

Machines, 114; Passengers, 437; Crews, 140; Total Personnel, 577.

Corresponding week, 1920:—

Machines, 123; Passengers, 262; Crews, 154; Total Personnel, 416.

NOTES OF THE WEEK.

The Aircraft Disposal Company have had a busy week. On Tuesday Capt. Stocken tested a D.H.9 and a Bristol Fighter and then took a D.H.9 to Brussels. Mr. Perry was up on the D.H.9a with the Rolls-Royce engine which he is going to fly in the race for the King's Cup. On Tuesday Capt. Stocken, after testing one D.H.9, handed it over to Mr. Piercey, who then took it to Brussels. Capt Stocken then took another D.H.9 for test on which he later left for Brussels accompanied by Mr. Perry on a Bristol Fighter. The following day Capt. Stocken and Mr. Perry were both testing D.H.9s. On Friday Mr. Perry tested yet another 9 and delivered it to Brussels. Capt. Stocken did likewise with a similar machine on Saturday.

During the course of Capt. Stocken's flight to Brussels on Wednesday he lowered the record for the trip to 75 minutes, the previous best being 82. There was a strong wind blowing right behind him.

Large numbers of passengers continue to occupy the air liners and there was a period on Saturday morning when Handley Page Transport had all their five machines in the air flying between London and Paris simultaneously. The Napier W.8 was hired by a private individual who likes to have aircraft all to himself. He apparently hates a crowd. The ordinary W.8b was off on the ordinary midday service and an O/400 went across to be kept in Paris as a spare. The two other W.8bs were returning from Paris.

Mr. Rogers took the O/400 up for a test flight carrying as passengers large quantities of pilots of other firms and wireless people, greatly excited at the resurrection of an O/400. If, as Air Ministry Regulations would have us believe, the factor of safeness of a machine is doubled by the carrying of an extra pilot and goes up in a like proportion for each additional one so carried, then the safety of that O/400 must have been equivalent to that of a family pew in a country church.

With reference to the remarks made last week in connection with the wonderful organisation and reliability of the Daimler Airway, one is asked to point out that besides an efficient ground staff this air line also employs pilots. These also contribute somewhat towards the success of the line.

The Instone Air Line have now completely ceased the carriage of goods and are vacating their goods office. This and the pilots' hut behind are being transplanted to the area behind the big hut and the vacated plot is being taken over by C.M.A. who thus complete the Aerodrome Broadway colour scheme.

A Goliath had a forced landing during the week at Berck. As the machine piloted by M. Challoux was taking off one engine cut out and the machine landed in a wood. The pilot when he saw that a forced landing was inevitable shouted "Securité Première," or words to that effect, which being interpreted might mean "Safety first," and the passengers with one accord dashed into the rearmost portion of the fuselage and were intact on landing

A curious mishap happened to a Spad last week. The machine was just starting out across the Channel when a magneto fell off into the water. The pilot turned round and landed and the machine would be able to proceed when another magneto had arrived.

Owing to the high wind on Wednesday many machines coming from Paris had to land *en route*. Mr. Robinson

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Manufacturers to H.M. Royal Air Force, Admiralty, Royal Navy Board of Sweden and the principal Aircraft Constructors, Atlantic Flight, etc.

(major) nearly got through, but owing to the strengthening of the wind, decided to land at Penshurst. Here there are no petrol arrangements and so he telephoned through to Croydon. Mr. Herne was just starting off for Paris on the 14.30 machine and ten tins of petrol were put on board. He reached Penshurst in five minutes, put out the tins, and other impediments, including oneself, and after less than a minute's wait was off again. He landed at Lympne for Customs clearance and finally reached Paris in two hours five minutes, including the two stops.

Meanwhile the machine which was down at Penshurst was filled up and then had to wait a considerable time for the local police officer and an Excise man who had to come from Tonbridge to sign the Customs paper. However, eventually we started off again and reached Croydon in seventeen minutes. The visibility was wonderful, the Crystal Palace could be seen as soon as we were off the ground at Penshurst and the whole of London could be seen at once and miles up North beyond.

The Avro which Mr. Baden Powell bought from Mr. Leavey was in the shed at Penshurst, the undercarriage and fuselage being smashed. This occurred when Mr. Powell was flying back from Croydon the previous Sunday evening. In landing he hit a bad ridge on the aerodrome and crashed the machine. However Mr. Powell proposes to buy a new one shortly, probably from the Surrey Flying Services.

Mr. Muir was carrying numbers of passengers on Saturday and Sunday. On Sunday morning he went to Colchester and back and on Sunday afternoon one of the Royal Aero Club Avros was being flown round about.

An R.A.F. machine came in during the week fitted with various curious instruments and was inspected by Sir Sefton Brancker and General Festing.

On Saturday a large prize sheep and a pig arrived at the aerodrome desiring to travel by air to Paris. They insisted on travelling by the Daimler Airway and as it was impossible to take them that day or Sunday they were billeted on Mr. Mighel's farm which is behind the Besseneaux and went across on the early machine on Monday.

Lieut. Stampe, who was until recently pilot to the King of the Belgians, arrived at Croydon on Monday afternoon in a Fokker D.VII. The registration marking caused much amusement. It was O-BABY. Had Mr. Shaw not been away on leave, doubtless he would have contributed to the gaiety of nations with the appropriate remark. Personally one is unable to think of it.

Mr. George Powell took Mr. Baker, the C.A.T.O., over to Brussels in an Instone D.H.34 to see the aerodrome on Saturday, and they returned on Monday. Mr. Powell tells one that he took off from the newly-levelled part of Brussels aerodrome and the surface is very good indeed. Mr. Powell is for the moment acting chief pilot to the Instone Air Line while Mr. Barnard is away on leave.

When the W.8 went to Paris on Saturday she was fitted with a new and improved form of silencer. However she broad-casted this along the route at intervals and returned on Monday with only a small piece of the silencer left.

Mr. Shaw is away on his holiday and is for the moment represented by an understudy. —G. D.

A NEW WORLD'S SPEED RECORD.

On August 26th at Turin, Signor Brack Papa, flying a Fiat biplane (700 h.p. Fiat engine), covered a measured kilometre in four flights, twice in each direction, at an average speed of 336.468 kms. per hour (208.946 m.p.h.). This has not yet been homologated by the F.A.I., but in the meantime it may be unofficially taken as a world's record.

One can imagine the amount of emotion this will cause to the country holding the Deutsch Cup who outwardly hate to admit that anyone else can design or fly really fast machines.

The presence of Sig. Brack Papa at Etampes on September 30th, together with Mr. James on the "Bamel," which the French have not yet seen in "full cry," should cause our respected Allies to experience a few sleepless nights.

TO SOARING ENTHUSIASTS.

Just at the present moment quite a number of people are seriously contemplating building gliding and soaring machines. Apparently one of their chief difficulties is to get the machines or parts thereof built when they have decided to have them. Any such would do well to make inquiries from the Central Aircraft Company, of 179, High Road, Kilburn, N.W.6.

Mr. C. H. Cattle is himself very much interested in the subject and intimates that his firm will be glad to carry out, at a moderate price, work for anybody who is thinking of producing a glider. The C.A.C. have always been noted for the thorough reliability of their workmanship and for the soundness of their material, so anybody who goes to them for glider construction may be sure of having work thoroughly well done.

A LEGAL AFFAIR.

At Wantage County Court Neville Vincent Dickinson sued the Berkshire Aviation Company Ltd, for £24 6s. as salary and commission while acting as pilot for them, and there was a counterclaim of £2 9s. for hotel expenses payable by the Company to the plaintiff.

Plaintiff stated that he was employed on a month's probation by defendants and if satisfactory after that period he was to be employed permanently. At the end of the month Mr. A. L. Robinson, the former pilot, who had been in hospital, returned to duty. As Mr. Dickinson had been flying without remuneration for the month's probation he claimed salary for that period, as he believed that the Company had arranged for Mr. Robinson's return and were trying to obtain something for nothing.

Defendants denied the allegation and after admitting that Mr. Dickinson was a very capable pilot, though they considered him unsuited for their particular kind of work, they were given a verdict both on the claim and the counterclaim.

It is hard luck on Mr. Dickinson, but the fact was that he had no actual legal agreement with the defendants. Though it is stated that the firm gave him a gratuity the amount was not mentioned in the reports of the case. If the Institute of Pilots actually existed it is probable that the bad custom of taking pilots on probation without payment would cease. Firms are always likely to have their actions misjudged and public sympathy is generally with individuals, whether right or wrong.

PERSONAL NOTICES.

Death.

BEDFORD.—On August 23rd, killed at Abu Sueir, Egypt, the result of an aeroplane accident, Frederick William Gordon Bedford, the Black Watch, attached R.A.F.

Births.

ENGLAND.—On August 26th, at Cranwell, Sleaford, the wife of S/Ldr. T. H. England, D.S.C., A.F.C., R.A.F.—a daughter.

LOCKER.—On August 19th, at "Wynberg," Woking, the wife of H. S. Locker (late R.N.A.S. and R.A.F.)—a daughter.

THE END OF CAPT. MACMILLAN'S PROGRESS.

As stated in this paper last week, Capt. Macmillan and Mr. Malins, who were missing after leaving Calcutta on the Fairey seaplane, were duly found. From the story in the *Daily News* it would appear that they had an extremely uncomfortable time, as they came down in the open sea while making for Chittagong.

Apparently the cause of the trouble was a stoppage in the petrol supply. They attempted to get back into the shelter of one of the rivers which form the estuary of the Ganges, but as the engine was not running they ran aground on the mud. They spent three very uncomfortable nights in the machine attempting during the intervening days to repair damage to the floats, and then managed to get off. After about fifteen minutes the engine began misfiring, so they were compelled again to come down in the open sea. This time, instead of drifting ashore, they were apparently drifted out to sea, where the machine gradually broke up and finally turned turtle, leaving them hanging onto the floats as well as they could. They spent a day and night, more or less, in this way, and were picked up next day by a launch which had put out from Chittagong to try and find them. Both the aviators were in a bad state when found, and were taken to hospital suffering from exposure, where happily they recovered after a few days.

It is understood that Capt. Macmillan and Mr. Malins will soon be returning to England accompanied by Major Blake, who is doing well after his operation for appendicitis.

Thus ends the much-boomed Round-the-World Flight. Everybody will be glad that it is ended without loss of life. It was foredoomed to failure, and for that reason this paper from the beginning refused to treat the flight seriously.

The machines used were not of types suitable to assure success, though excellent in their way. Mr. Alan Cobham has shown what the standard D.H.9 can do when used for ordinary touring over more or less civilised country. Messrs. Parer and McIntosh actually got to Australia on a similar machine by infinite pluck and patience and considerable ability. The Fairey machine was an excellent vehicle of its type, but it was not intended for long-distance ocean flying. It was, in fact, the all-round hack machine of the Fairey Aviation Company at Hamble for quite a long time, and was sold to the Disposal Company merely as a seaplane without any intimation that it was in any way suitable for round-the-world flying. Purely as a seaplane it was one of the best machines ever turned out by the Fairey Company, but it did not embody any of the special features which the firm intends to embody in its round-the-world machine if and when it is called upon to build such a machine.

The expedition started at the wrong time of year, as everybody interested in the subject knew. The unfortunate error of something over 100 miles' deviation from the course between Karachi and Lahore proved that the navigation of the expedition was not above reproach, and a variety of quite minor things generally conveyed the impression that the expedition would not be successful.

Nobody doubted for a moment the pluck and good intentions of all of the original party which left Croydon, and everybody will be glad that the ill-fated expedition has come to an end without loss of life. Major Blake did his best to pull the affair through by enlisting the sympathy of everybody who could be useful to its progress. It was unfortunate that he should have been compelled to abandon his effort even before reaching Calcutta. Capt. Macmillan has certainly performed prodigies in piloting his passengers so far as they went and on doing so without any relief pilot. He at any rate will profit by the expedition to the extent of adding very considerably to his reputation as a pilot. One congratulates all concerned on a happy issue out of their assorted dangers.

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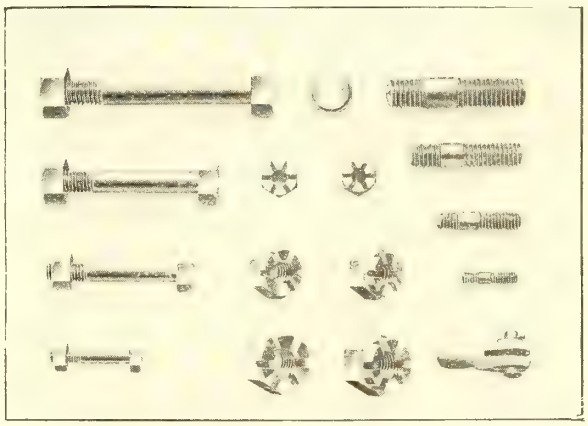
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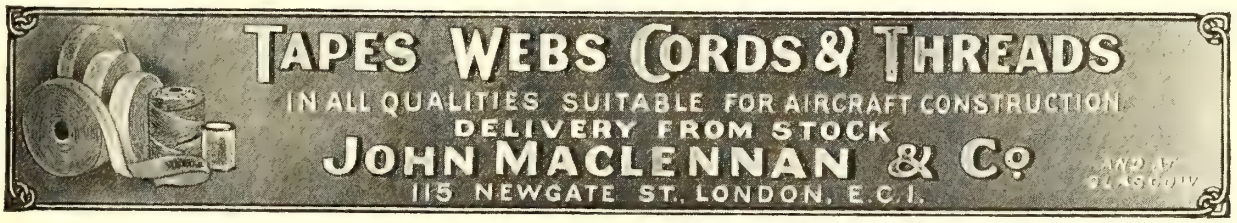
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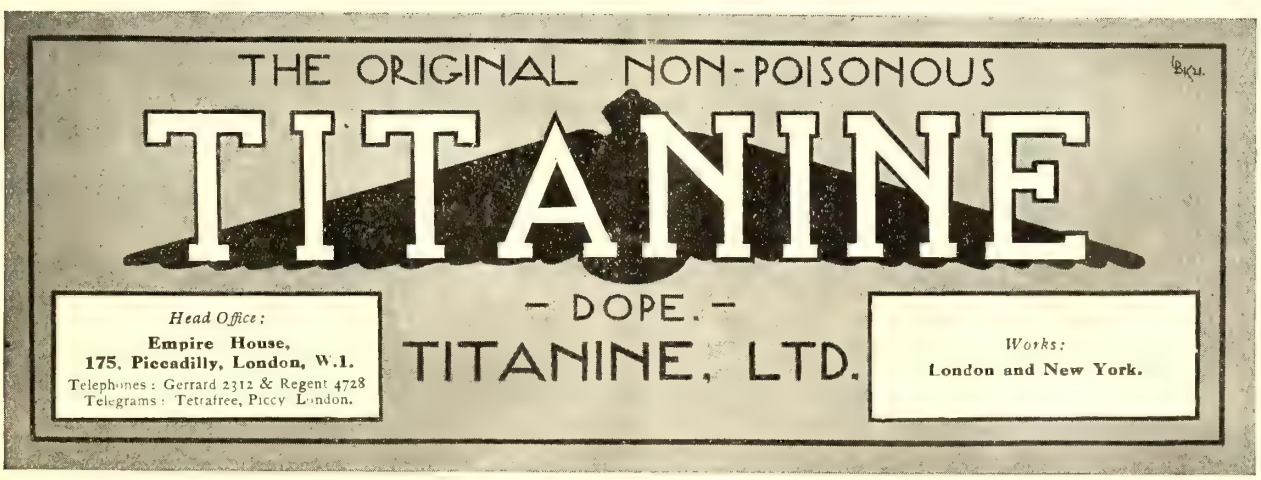
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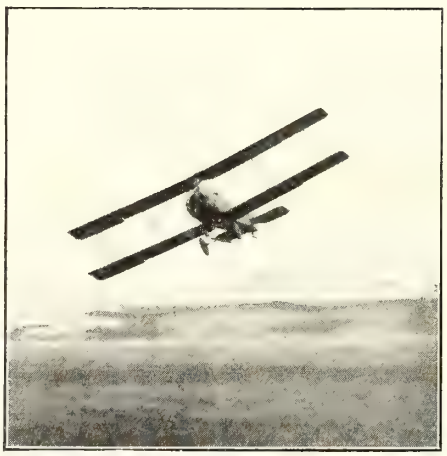


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ON THE R.A.F. IN INDIA.

With that perspicacity which it always displays in connection with aviation the daily press has just discovered what everybody concerned with flying knew twelve months and more ago, namely, that the R.A.F. in India has been having a very bad time. And naturally the *Times* newspaper, assisted by Brig.-Gen. P. R. C. Groves (late R.A.F.), has made use of this belated discovery as a weapon with which to attack the Staff of the Royal Air Force.

The facts are, briefly, that after the Armistice when everybody was scrambling to be demobilised, a certain number of efficient squadrons of the R.A.F. had to be sent to North and South Russia where a real war was in progress. Consequently it was impossible to man or equip adequate squadrons for India. Moreover, even if it had been possible to do so, the Government of India did not understand and did not want aircraft and would not go to the expense of maintaining an adequate air force.

Nevertheless squadrons were sent to India, some of them good and some of them not so good. Even in those which might almost be described as bad there were some very good officers and men. But on the whole the R.A.F. personnel in India was not up to the standard of the R.A.F. as a whole. It could not be so.

As Satan finds some mischief still for idle hands to do and as the R.A.F. had nothing much to do because the Indian Army Command refused to use aircraft for the work which it ought to have done on the Frontier and refused to buy proper equipment, a certain number of R.A.F. people got into trouble. Also the R.A.F. personnel were mostly youngsters without experience of the peace-time manners and customs of the Services. The result was that the R.A.F. became extremely unpopular with the Old Army in India and was barred from Service clubs and social functions.

The enforced idleness of the R.A.F. was aggravated by the the fact that the aeroplanes, engines and other equipment of the squadrons deteriorated quickly in the Indian climate, so that a year or more ago they had practically no machines fit to fly. The Indian Government refused to pay for new equipment in spite of the representations of the senior officers of the R.A.F. The Commander-in-Chief in India, General Rawlinson, has apparently about as much understanding of the needs and uses of an Air Force as has the average Naval Officer, so no support was forthcoming from him for the demands for new equipment. And the Air Ministry could not supply new equipment free of charge because Treasury sanction was necessary, and the Treasury, knowing nothing of aircraft but a great deal about the over-burdened British taxpayer, could not possibly consent to making a present to the Indian Government of some millions of pounds' worth of equipment when in fact India was much better able to pay for it than England was.

As a matter of fact one is strongly under the impression that India has never even paid for the original equipment which was sent out with the first squadrons and aircraft parks and stores depots which arrived after the Armistice. Apparently, therefore, the British taxpayer has already paid for such aircraft equipment as the fabulously wealthy Indian Empire has had.

The Beginning of Reform.

Under such conditions it was obvious that the time must come when the R.A.F. in India would be immobilised through sheer lack of machines and equipment. All this was perfectly well known to the R.A.F. Staff at the Air Ministry and every possible effort was made to induce the Army High Command in India to deal adequately with the crisis, but without avail. Finally many months ago it was decided that Air Vice-Marshal Sir John Salmond, the next senior officer of the R.A.F. to Air Chief Marshal Sir Hugh Trenchard, Chief of the Air Staff, should himself go to India and tackle the task of persuading General Rawlinson and the Indian Government to equip and use their aerial forces in a proper manner.

Sir John Salmond has a habit of being successful. Judging even by the meagre reports which have come through concerning an interview which Reuter's correspondent at Simla has had with Sir John it is amply clear that he has succeeded in this difficult task, for according to these reports he is satisfied with the results of his visits and a quantity of new machines and other equipment is already on the way or is about to be sent to India.

A Belated Attack.

It is particularly to be noted that this latest attack by the Harmsworth Press on the Air Staff of the R.A.F. only began *after* Sir John Salmond had completed his successful tour of inspection and reformation and *after* the re-equipment of the R.A.F. in India had been put in hand. That is very clumsy journalism. One hardly expected the removal of Lord Northcliffe's master hand to be shown so soon or so clearly.

His habit always was to find out what was going to be done before other people knew or to see what must inevitably happen and then to launch a strenuous agitation in favour of the inevitable. After it had happened he was then always in the pleasant position of being able to claim credit for having backed a winner, even though he had been, so to speak, betting on a certainty.

His successors will no doubt find in time and in the *Times* that there is little enough credit to be got out of merely attacking persons and departments which have already reformed or are in process of reforming the evils against which they are agitating. To be of use or to acquire credit an attack should always be launched before anybody knows that a reform has begun. Then the attack, if launched against the right people, will help the reformers, but it is important that the reformers themselves should not be attacked for then the attackers merely do harm and make themselves look ridiculous. Which is precisely what the *Times* and Brig.-Gen. Groves have done.

The People to Blame.

Moreover, the *Times* certainly ought to have known, and so ought General Groves, unless he be either amazingly ignorant or blinded by prejudice, that as already intimated the Air Ministry is not in the least to blame. The people who should have been attacked are General Rawlinson and the Government of India.

One is glad to see this view confirmed by Lord Montagu of Beaulieu, who in a letter to the *Times* (in the very issue in which General Groves publishes one of his most venomous attacks) says :—"I had several conversations (in July last) with members of the Air Ministry and was informed that pressure was being brought to bear upon the Government of India to put the Air Force there in a state of efficiency; but with the financial stringency existing in India there had been considerable difficulties to be overcome. In the absence of evidence to the contrary I think we must assume that this is still the case and that it is carefulness about the rupees in India rather than carelessness or callousness at the Air Ministry which has led to the recent casualties on the North-West Frontier"

Lord Montagu also disposes of the charge that bomb raids are made from aerodromes unnecessarily far from their objectives. A deceased pilot writing home recently said :—"We have had to do raids into Waziristan, a distance of 200 miles from here, every day for the last five days. It is an awful job and naturally the machines won't stand it. They ought to have made us go down to Tank, a place close to Waziristan, and do our operations from there."

Lord Montagu says :—"All along the Frontier, from Peshawar to Quetta, there is a string of landing places, but many of these are in very wild parts of the country and most of them are entirely unprotected from raids or even single snipers." He might have added further that for operations the R.A.F. in India is under the Indian Army, so that the jumping-off place for raids is not entirely the affair of the R.A.F. Command.

That the mere job of doing 400 miles per day for five consecutive days should inspire a flying officer to say : "naturally the machines won't stand it," shows how grave is the responsibility on the Indian Government for compelling the use of such machines. Here in Civil Aviation we have had a solitary De Havilland 34, with a Napier engine, doing its 1,000 miles a day for weeks on end, thanks to the skilful technical organisation of the Daimler Airway by Major

Woods Humphrey, yet less than half the distance for five days is assumed naturally to be too much for a Service machine. It may well be that Woods Humphreys do not occur in every squadron of the R.A.F. in India (or at home for that matter) but with adequate equipment any machine of any squadron ought to be able to do at any rate half what the D.H.34 has been doing, or the High Authorities should want to know the reason why.

An Ineffective Critic.

So far as General Groves is concerned his latest attack in the *Times* of September 1st merely lowers still further the low opinion which one has hitherto held of that officer's ability either as a constructive or destructive critic, and as an authority on anything concerned with aviation. One has never quite been able to understand how he came to be accepted as an authority. His connection with aviation has been comparatively brief, though it is true that he attained to the rank of Brigadier-General. He was, one believes, on the staff of Sir Geoffrey Salmond in Egypt and later was Director of Operations, or something of that nature, on the staff of Sir Frederick Sykes when that officer succeeded Sir Hugh Trenchard as Chief of the Air Staff in 1918, after the Rothermere affair.

Sir Frederick Sykes is himself to-day something of a punctured balloon so far as aviation is concerned and though perhaps by some General Groves may be rated as being of greater capacity than his late chief he has certainly published nothing since he left the R.A.F. very soon after the outbreak of Peace which gives one any faith in his judgment of the uses of aircraft in peace or war. One can only imagine that his name may have conveyed the impression that he is connected with that intellectually brilliant family of which the best known was the late Air-Commodore R. M. Groves, formerly Commander R.N., whose death in an aeroplane accident in Egypt was a veritable calamity to the R.A.F. In fact some people quite closely connected with aviation, forgetting the death of that gallant officer have actually been under the impression that General P. R. C. Groves is Air-Commodore R. M. Groves retired with Army rank. Others again think that he is one Piers Groves a member of the same family. It seems well therefore to make it quite clear that there is no relationship between them.

The late Air-Commodore was a daring and persistent though fearsomely erratic pilot, a very great organiser, a constructive critic of astonishing ability, and he won the admiration and affection of all who served under or with him. He belonged to a family well known in Manchester for its business acumen. He served many years in the Navy and was one of the few Naval officers who appreciated and understood aviation. General P. R. C. Groves was an officer of the Regular Army till he joined the R.F.C., is not related to the Manchester family, and if one may judge by his writings on aviation one may characterise him as being one of the few Army officers who does not appreciate and understand aviation.

Misapprehensions of Fact.

If, as he should have done after all the time he spent on the Staff in Egypt, General Groves had known anything of the higher Administration he would never have written apropos the R.A.F. in India—"It has suffered . . . through the neglect of the Air Ministry. . . The Air Ministry has failed to supply it with suitable and sufficient equipment." He would have known perfectly well that the Air Ministry could not supply suitable and sufficient equipment unless the Indian Government made suitable arrangements with the English Treasury.

It may be literally true as he says "that the cost of the upkeep of the Royal Air Force in India is borne partly by the Indian Government and partly by the Home Government, but the Air Ministry alone is responsible for supplies both of material and of *personnel*." But that sentence needs explanation. The proportion of cost of upkeep is fixed by agreement, and if the Indian Government refuses to allocate a sum sufficient to do the job properly then the Home Government's allocation is reduced accordingly, on the principle that half nothing is nothing.

Also General Groves uses the word "responsible" disingenuously. The Air Ministry is responsible for the quality of the supplies of material and personnel. But, as already shown, the quantity depends entirely on the money allocated by the Indian Government. If General Groves is inadequate as a critic it is evident that he is an expert twister of words.

Furthermore he attacks the Air Ministry on account of the quality of the machines and bombs used in these Waziristan raids, skilfully ignoring the fact that though, as stated, the Air Ministry was responsible for their quality when they were sent to India three years ago the Air Ministry cannot be held responsible for their deterioration in that period. The blame for the use of such material rests entirely on the Indian Government which refused to find the money to replace such material when it ought to have been put on the scrap-heap and burnt.

The Honour of the Services.

Finally, as a last touch of venom he drags up the case of a misguided and ill-informed officer in the R.A.F., formerly a Naval Officer, who was court-martialled, and considerately allowed to resign instead of being cashiered, for publishing an amazingly foolish and misleading attack on the Air Staff in the *Pall Mall Gazette*, some months ago. General Groves, once a regular officer of the Old Army, says :—"It is at least questionable whether the attempts of this officer to give publicity to a scandal which cuts at the very roots of the efficiency of what little Air Force we possess was a greater crime than that committed by those in authority who neglected his repeated recommendations."

General Groves, having served in Egypt, might have recollected the story of the Israelites who were compelled to make bricks without straw. Such was the regular task of the Old Army before the war, and such has been the task of the Air Staff ever since the war. But apparently he is not concerned with the rights and wrongs of the case so long as he can attack the Air Ministry, which really means the Air Staff.

It seems almost a pity that he did not remain in the R.A.F. after the war and put into practice the theories which he preaches with such volubility, or at any rate do his best to prevent the practice of those evils which he professes to expose. But on the other hand, when one reads all the nonsense that he has written about building up a vast network of subsidised air lines (which, incidentally, would be operated by empty aeroplanes, seeing that the few air lines running to-day cannot fill their few machines) and building up a vast reserve for the Air Force out of these empty air lines, one begins to think that it is as well for the R.A.F. that he is merely an ineffective critic outside the Service instead of a senior officer inside speaking with the voice of one having authority.

A Harmless Amusement.

So long as the *Times* and General Groves continue to publish nonsense about civil aviation and to attack the Air Staff a year or so too late about reforms which are already well on the way to completion they are practically harmless and merely make themselves look ridiculous. In fact it would not be worth while to devote so much space to them as one has done were it not for the fact that some of the young officers and men of the R.A.F. do not know the true state of affairs, as is shown by those pathetic letters in the *Times* from the relations of dead and living aviators in India. Therefore it seems well to supply them with answers to the questions which the yare likely to be asked by friends outside the R.A.F. Also the explanation which one has given may, one hopes, be of use in upholding the faith of some of the weaker brethren both in this country and on foreign service.—C. G. G.

THE KING'S CUP RACE.

Do not forget that the start for the King's Cup Race takes place at Croydon at 9 a.m. on Friday next, Sept. 8th

Competitors will start at their handicap times so that the scratch man should start about lunch time.

The handicap times have been split in two in the proportion of the ratio of the distance from London to Glasgow via Birmingham and Newcastle to the distance from Glasgow to London via Manchester and Bristol. Thus the first arrival at Glasgow will be the actual winner of that section of the race.

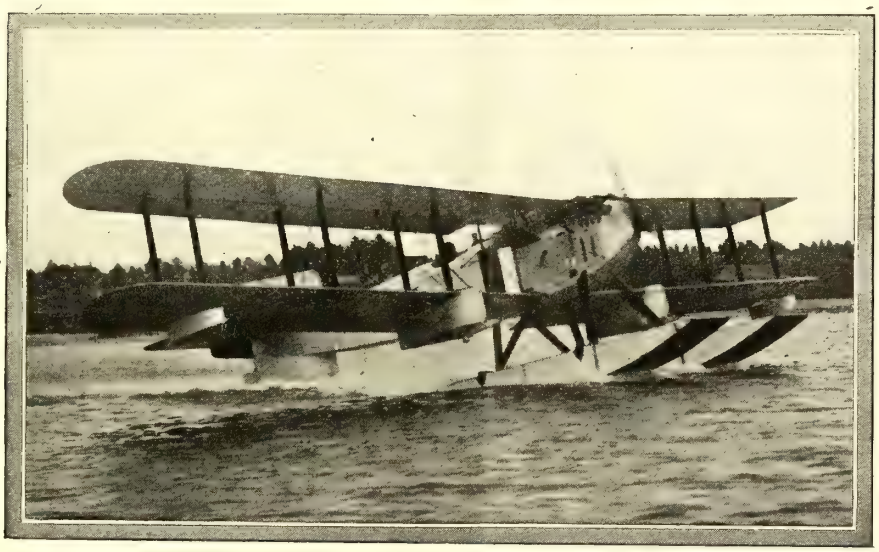
On the Saturday the competitors will start from Glasgow on their times for the second part of the handicap plus or minus what they have lost or gained in the first part of the race.

The leaders are expected back at Croydon any time after 15.00 hours on Saturday, Sept. 9th. In any case there will be exhibition flying at Croydon after 15.00 hours by Service and civilian pilots.

As there is not enough space available in this paper to deal fully with matters of historical value which have happened in this country and all over the World one does not propose to occupy space with forecasts of what may or may not happen in the race or with portraits of those who may or may not start. What one does propose is to publish next week the best-informed description of the race.

As the daily Press is very properly taking such a vivid interest in the race it may be assumed that all needful information as to starters and scratchings will be found there. One recommends particularly the "Evening News" and the "Evening Standard" as being especially well-informed on aeronautical matters. Meantime all one need do is wish the competitors good luck with the weather.—C. G. G.

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R.A.F. INTELLIGENCE.

Appointments.

Air Ministry, Aug. 28th.

Wing/Cmdrs. T. O. Lyons, O.B.E., from R.A.F. Depot to Half-Pay List 9/9,; D. A. Oliver, D.S.O., O.B.E., from R.A.F. Base, Leuchars, to Half-Pay List, 1/9.

Wing/Cmdr. (Act. Grp/Capt.) R. D. S. Stoney, C.B.E., from Central Pay Office, Woking, to H.Q.C.A. (Supernumerary), 14/7.

S/Ldr. (Act. Grp/Capt.) H. C. Ellis, C.B.E., from R.A.F. Depot to Palestine Wing H.Q. (Supernumerary), 11/8.

S/Ldrs. R. E. Bell, M.B., from R.A.F. Depot to H.Q., R.A.F. (Iraq), 10/8; J. W. Cordingley, O.B.E., from Air Ministry (D. of P.) to command Record Office, 1/10; W. G. W. Prall, from Inspector of Recruiting to Air Ministry (D of P.), 1/10; W. Sowrey, A.F.C. The previous notification wherein this Officer was posted from R.A.F. Depot to No. 207 Sqdn. is hereby cancelled; A. W Tedder. The previous notification concerning this Officer, which apveared in *Intelligence Bulletin*, is hereby cancelled. G. S. Marshall, O.B.E., D.P.H., from R.A.F Depot to Research Laboratory and M.O.S. of I., 23/8.

F/Lt. (Hon. S/Ldr.) W. R. Kemp, B.A., from C. and M. Party, Felixstowe, to Marine and Armament Exper. Establ, 14/8.

F/Lt. (Act. S/Ldr.) F. C. Kempson, M.B., B.A., from C. and M. Party, Donibristle. to R.A.F. Base, Leuchars, 14/8.

F/Lts. I. M. Matheson, from No. 39 Sqdn. to Armament and Gunnery School (Supernumerary), 21/8; J. C. T. Fiddes, M.B., from No. 1 School of T.T. (Boys) (Halton) to H.Q., R.A.F. (Iraq), 10/8; A. H. Wann, from R.A.F. Depot to School of Naval Co-operation and Aerial Navigation (Supernumerary), 19/8; H. M. Daniel, M.B., from R.A.F. Depot to C.F.S., 14/8; T. H. K. MacLaughlin, from R.A.F. Depot to No. 2 Sqdn. (Ireland), 19/8; O. St. L. Campion, from No 2 Sqdn. (Ireland) to R.A.F. Depot, 21/8; T. L. P. Harries, from C.F.S. to R.A.F. Depot, 16/8; G. B. A. Baker, M.C., from Air Ministry (D.T.O.) to School of Photography (Supernumerary), 1/9; W. H. Longton, D.F.C., A.F.C., from H.Q. (I.A.) to Air Ministry (D.T.S.D.), 1/9; H. H. James, from R.A.F. Depot to Boys' Wing (Cranwell), 22/8; W. E. C. B. C. Forsyth, from Aircraft Depot (M.E.) to No. 4 F.T.S. (M.E.) 1/8; J. A. Perdrau, M.D., from R.A.F. Depot to School of T.T. (Men), 22/8; M. Coghlan, M.B., from Research Laboratory and M.O.S. of I. to R.A.F. Depot (Supernumerary), 23/8; J. W. H. Steil, M.B., from Research Laboratory and M.O.S. of I. to H.Q. (C.A.) (Supernumerary), 23/8.

The New Director of Training.

It was announced by the Air Ministry in the *London Gazette* of September 1st that Air Commodore Thomas Charles Reginald Higgins, C.M.G., is to be Director of Training and Staff Duties, the appointment to date from September 1st.

Air Commodore T. C. R. Higgins has been an officer of the Royal Flying Corps since 1915, and did his early military flying at Shoreham. He was granted his Royal Aero Club Certificate (No. 88) on May 16th, 1911, having done his tests on a Farman biplane at Hendon. At the end of the war he was commanding the Sixth Brigade, R.A.F. (London Air Defence Area) and a week before the Armistice he flew over to France on the last "Pup" ever used in the war.

He was in the Navy as a midshipman from 1897 to 1900, when he joined the King's Own Royal Lancaster Regt. He served with the Mediterranean Fleet, and fought in South Africa and in France.

The R.A.F. Club Cricket Week.

Matters in connection with the Cricket Week are, one learns, progressing very satisfactorily. Arrangements at Eastbourne are complete, and a correspondent has been assured by the Mayor and other local personages that all that is required to make the event an outstanding success is fine weather. The Mayor himself has taken a tent on the ground, and is entertaining publicly on four out of the six days' play.

The only change in the sides as advertised is that Hon. F. S. G. Calthorpe, captain of Warwick, a member of the Club, is unfortunately (if one may use the word, seeing that what is preventing his attendance is his marriage) prevented from playing. His place has been offered to G. A. Rotherham (Warwick), and in the event of Rotherham being unable to play it will be filled by Norman Partridge (Warwick).

Tickets have been well taken up by the general public, but not very well supported by members of the Royal Air Force Club. One learns that an objection was recently put forward by some members of the Club, who stated that they would not support the Week because they did not believe in asking the general public to support the Club finances. This would be a valid argument were it correct. Unfortunately these members do not appear to have read either the posters which are posted in their own Club or the daily or sporting Press. On the posters one object is clearly stated—that the R.A.F. Memorial Fund will benefit from any profits which may be made. And in many daily papers, including last week the *Daily Telegraph* and *Sporting Life*, the objects of holding the Week were clearly set forth as follows :—"To provide members of the Club with a sporting and social event; to benefit the R.A.F. Memorial Fund; to foster cricket; and to encourage recruiting for the R.A.F. amongst sportsmen."

One learns that the Club will have its own tent and enclosure on the ground, and from this only will the Club finances benefit. With tents at Ascot, the R.A.F. Pageant, and other functions, nobody can raise any objection to this.

This is, however, the first time the Week will have been run. It has been most enthusiastically welcomed by every first-class cricketer, by the entire sporting Press, and by a large section of the general public. Writing to the *Daily Telegraph* one member of the great B.P. put matters very succinctly and very nicely. He said that "the R.A.F. Club should be doubly congratulated for providing not only first-class cricket, but first-class cricket that will help cricket generally in that no points will be at issue, and the public will be able to see the very finest purely sporting games. Wilfrid Rhodes will not be bowling full-tosses because his side might lose did he not, nor Holmes sitting on the splice because he wants to play out time. . . ."

One looks forward to the Week becoming a growing success from year to year, perhaps with other equally sporting functions promoted by the Club, until the Royal Air Force becomes known not only as a fine military service, but as a Service composed of sportsmen in the true sense of the word. And events such as this Week, one is inclined to think, will certainly help towards that end.

AIR ROUTE EXTENSIONS.

There is shortly to be a general extension of all the air lines. For the past season three British lines—Handley Page Transport, the Instone Air Line and the Daimler Airway—have been exploiting the Paris route. The result has been that though all have been carrying a moderate number of passengers there has been a too high percentage of empty seats.

These three firms have all been in consultation with the Air Ministry and there is likely to be a distribution of the three firms over various extended air routes.

One understands that the general scheme is as follows. Handley Page Transport, who were the first of the British air lines to operate the Paris line, are to be given the monopoly of this route and will extend on to Lausanne.

The Instone Air Line, who have in addition to their Paris route been successfully operating the Brussels route, are to concentrate all their resources on this line with an immediate extension to Cologne and later on to Prague. The idea is eventually to extend right across Europe, take over the Desert route to Baghdad and finally link up with India.

The Daimler Airway are to operate via Amsterdam to Berlin, also eventually extending East from there.

This will entail a re-arrangement and re-allotment of subsidy and it is hoped to bring the fares down as nearly as possible to those of first class train and boat travel.

The distance to Berlin is roughly 600 miles. At the present moment the Daimler Airway run a machine to Paris and back twice in the day, a distance of nearly a thousand miles, and have on one occasion run twice to Paris and back and made one additional single trip all with one machine, so that by next year, with the experience gained, they should have no difficulty in making the trip to Berlin and back in the day.

All this would seem to be the beginning of real commercial aviation at last. Up to now, on the Paris route, aeroplanes have been competing with what is probably the best organised train and boat route in the world. On the Berlin route, however, the journey takes normally some two or three days. The air trip will only be six hours.

Again, on the Cologne route, though the train and boat service to Brussels from London is moderately good, the service on to Cologne is at present very bad, the trains being all very crowded and very slow. The journey by air from Brussels to Cologne will be only about an hour's run and Cologne can be reached from London in about three and a half hours. There is a very big traffic between the three towns.

It would seem, however, that the equipment of the lines has not been adequately considered. The Handley Pages, which are the slowest of the air-liners, are to be kept on the Paris route where speed is the prime factor in success. The high-speed Daimler 34s are set to fly over Holland where slowness of landing speed is more important than anything in case of a forced landing—and despite their wonderful organisation forced landings must occur sometimes. And the Instone Co., who have the very machines for the Dutch route, are put onto the Cologne line where the Handley Pages would be most suitable.

PERSONAL NOTICES.

Death

POTTER.—On August 31st, killed at Abu Sueir, Egypt, as the result of an aeroplane accident, F/O. Harold Frank Potter, R.A.F.

Marriage.

PAKENHAM-WALSH—GREVES.—On August 9th, at Uxbridge, F/Lt. Louis Henry Pakenham-Walsh, D.F.C., R.A.F., third son of the late Louis Henry Pakenham-Walsh, "Old Vicarage," Neston, Cheshire, to Dorothy Eva, eldest daughter of Mr. and Mrs. W. R. Greves, "Laurenny," Bourne End, Bucks.

Birth

HETHERINGTON.—On August 27th, in Cairo, to Clementina Dundas, wife of T. Gerard Hetherington, C.B.E., R.A.F., of Abberton Manor, near Colchester—a daughter.

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6 Passengers and Baggage, or 1,360 lbs. Freight.
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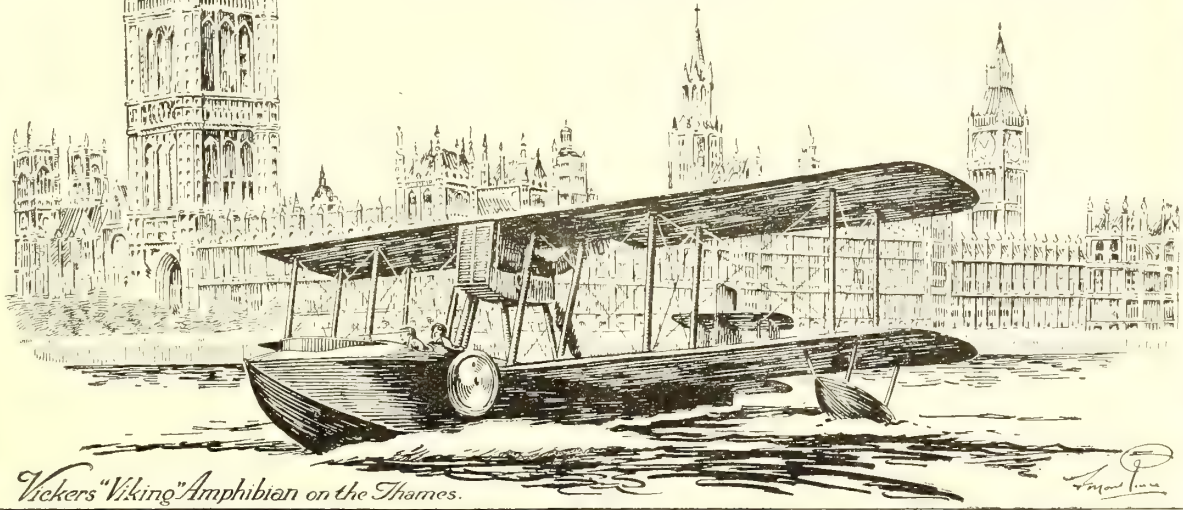
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An Industrial Aeroplane Service is a Potential War Force.

At a Meeting of the Supreme Council held at the Quay d'Orsay, Paris, March, 1919, the following question and answer were propounded:

Question: Can civil aeroplanes and airships be transformed easily into weapons of war?

Answer: Unanimously; Yes, very easily and very quickly.

"An aeroplane which can carry a certain number of passengers a certain distance at a certain speed is capable of carrying an equivalant weight in bombs at the same speed."—Brigadier-General P. R. C. Groves in "The Times."

The efficient modern machinery with which it is equipped, the experience of its highly-trained staff as designers and constructors of aircraft in the world war, together with its remoteness from probable centres of attack during hostilities, render the Westland Aircraft Works, Yeovil,

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THE FIRST REPORT OF THE CIVIL AVIATION ADVISORY BOARD.

(*Concluded.*)

BY W. H. SAYERS.

After having expressed their opinion that all the Technical difficulties involved in running a mail service to India should be referred for Research, the Board concur with the report of Lord Weir's Committee of 1919 that the development of any such service will best be carried out by private enterprise, supported and encouraged by financial and other assistance from the State The question of the form of this assistance presents difficulties. A large initial capital outlay is essential and it will be some long time before any return upon that capital will be possible.

For the Government to guarantee a reasonable return on the capital would be to remove most of the incentive to economical and efficient operation by the company concerned On the other hand capital will not be found if the chances of eventually earning a large interest are too speculative. Any form of assistance which does not guarantee a definite income is too indefinite to allow the necessary capital to be raised.

In the view of the Committee any form of State Subsidy should comply with the following conditions :—(1) Assure a return of the capital invested. (2) Give a sufficient incentive to economy and efficiency in operation. (3) Limit to a definite maximum the liability assumed by the State. (4) Should be granted on the condition that in case of emergency the Government have a call upon the whole materiél and personnel of the operating company.

An appendix makes a definite suggestion for a form of subsidy to meet these requirements. Under this scheme :—

(1) The Government is to guarantee :—(a) a low rate of interest on the capital invested and (b) the amount of the working expenses at a figure agreed between the Government and the Contractors.

(2) The Contractors are to retain :—(a) the whole earnings of the service and (b) a percentage of any reduction effected in the agreed sum for working expenses.

Finally any balance left over after payment of dividend at an agreed rate is to be divided equally between Government and Contractors. This is not suggested as the only possible type of subsidy and it is merely one possible arrangement. It scarcely sounds like one that would be acceptable to a British Government in the present state of the finances—particularly as it is also recommended that any aerodromes provided for the service should be acquired by the State and rented to the operating company. So that in effect the State would provide much of the capital, pay working expenses and dividend, and take a half share in anything else the company can manage to make—either by economics on the original estimate of working expenses, or in the shape of revenue.

The route to be used should, in the opinion of the Board, be selected in the light of Imperial requirements, with a particular eye to the possible or probable needs of the R.A.F., and having been selected, open tenders should be advertised, asking tendering firms to quote terms and conditions under which they would be prepared to maintain a daily, a bi-weekly or a weekly service along the specified route or routes, assuming loads of 500, 1,000, or 2,000 lbs. of mail per week. In this way it is thought that a wider range of alternative methods of dealing with the finance of the scheme would be forthcoming than would be the case if tenders were confined to conformity with predictated terms. And that is about all that the Board has to say as to how to get a service into operation.

Part II. of the report is concerned with details of possible routes. It begins with a short note concerning the R.A.F.'s present Cairo-Baghdad service and the great saving in time which is made by that service in the carriage of mails to Iraq. It proceeds to discuss this service as a link in the chain to India—mails being pickel up at Port Said or Alexandria, and carried over the desert route to Baghdad as against the alternative of a route from Constantinople to Baghdad, which would give a more direct route to India. An alternative route is via Alexandretta (Asia Minor), and this might be used if a projected French service from Paris via Italy and Greece to Alexandretta comes into being.

Whatever happens between England and Baghdad a link from Baghdad to Karachi is needed. There are various alternatives available.

The Persian authorities have asked for and obtained permission to transmit their own mails from Baghdad to Cairo. The Persian Government has adhered to the International Convention for Air Navigation and therefore must allow British Civil Aircraft to cross Persia. No difficulty should arise to the operation of a route over Persian territory. On the other hand the R.A.F. are interested in the maintenance of a strategic route to India, and the route on the northern coast of the Persian Gulf might not meet their requirements and therefore it may be advisable to develop the longer Arabian coast route. The shorter Persian route to Karachi, via Basra, Bushire and Bandar Abbas is 1,650 miles long.

A service terminating at Karachi would however involve the loss of one day of the time saved in the air on 70 per cent. of the Indian mail, as compared to a through service to Bombay, and an additional 550 miles route to this city would be desirable. This service could be run by flying-boats.

No All-British air route from England to India can yet be mapped out, but it is thought that this will be nearly, if not quite, possible as soon as machines are available which can make the trip to London-Malta (1,330 miles) in one trip. In the meantime it would be possible to organise several routes to be operated by British machines from London to Constantinople or Cairo.

For operation by land machines a route to London, Brussels, Frankfort, Nuremberg, Vienna, Budapest, Bucharest and Constantinople, 1,600 miles with a maximum stage length of 390 miles is available. Connecting at Constantinople with the already mentioned route to Baghdad, the total distance to Baghdad from London would be about 2,750 miles. Alternatively is a route London-Brindisi via Paris, Lyons, Marseilles, San Raphael, Pisa, and Naples by land machines, and thence to Patras, Suda Bay and Alexandria by flying-boat would connect with the Baghdad desert rout already running. The distance to Alexandria would be 1,355 miles overland, and 1,010 miles over sea, total about 3,200 miles to Baghdad.

A seaplane route from Southampton via Bordeaux across the South of France, and then via Sardinia and Crete totals 2,650 miles to Alexandria alone, and is not considered practicable on account of this length.

THE SAVING OF TIME.

On the basis of a cruising speed of 100 m.p.h., flying by day only, and assuming regularity equal to that of the existing rail and steamer services, the Board estimates that an air service from either Constantinople or Alexandria to Karachi and Bombay will save 7½ days to Karachi, 4½ to Bombay, and 5½ to Calcutta on all mails despatched by that route. On the homeward journey adverse prevailing wind would reduce the saving by one day.

With air mails right through from London, either via Constantinople or Egypt, the saving would be 2 days greater.

COSTS.

Emphasising the fact that the data available is insufficient to found reliable estimates the Board nevertheless put forward figures for the operating costs of weekly and daily services over the various routes.

The cost on the London-Constantinople route overland is put at £650 per trip for a weekly service, and £286 per trip for a daily service. For the service London-Brindisi-Alexandria the costs are weekly £1,319, and daily £574.

For Constantinople-Baghdad, weekly £946, and daily £230. For the Cairo-Baghdad section, weekly £675, daily £395. For Baghdad-Karachi, weekly £981, daily £395. For Karachi-Bombay, weekly £539, daily £225.

The cost of a trip to Bombay is estimated as follows :—
Via Constantinople, weekly £3,110, daily £1,136.
Via Brindisi and Alexandria, weekly £3,514, daily £1,424.
These figures are totals and inclusive of capital charges for both aircraft and ground organisation.

On the subject of receipts the Board are very vague. They confess to having no adequate data, and the only point of any value brought to light is the Post Office's opinion of mail loads and charges for the Cairo or Constantinople to Karachi service. They do not believe more than 500 lbs. per trip is likely to be available, and that 1s. per oz. letter would be as high as could be charged. On an average of 25 letters to the pound, the mail revenue would be £315 per trip. Even assuming that 4 passengers at £50 per head could be carried on each trip, the total revenue does not begin to cover costs.

The Board make the following recommendations :—

(A) 1. A technical and scientific investigation as already described and criticised should be instituted
2. A special Sub-Committee of the Aeronautical Research Committee should be instituted for this enquiry.
3. A total sum of £200,000 spread over three years should be set aside for the costs of this investigation and for purchase of experimental matériel.
4. This investigation should not interfere with the establishment of an air mail service to India.

(B) 1. (a) That the Baghdad-Karachi route be laid out and prepared for operation by civil aircraft, and that a sum of £100,000 be allocated.
(b) That tenders be invited for both a weekly and a daily service from Baghdad to Karachi and Calcutta, with a branch to Bombay.
2. (a) That the Cairo-Baghdad route be prepared for civil operation. £20,000 is the estimated cost.
(b) That tenders be invited for a weekly and a daily service from Cairo, or Port Said to Baghdad.
3. That the Company whose tender is accepted be given :—(i) An annual payment for three or five years, amount to be settled when tenders have been examined. (ii) A guarantee of a small dividend on capital for three or five years.

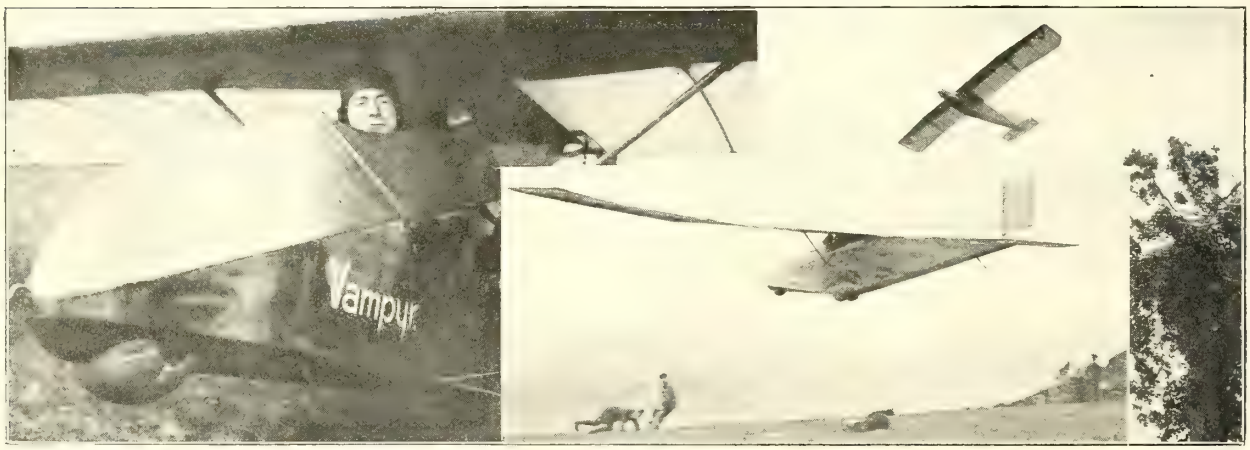
(C) At a further stage when conditions in Turkey in Asia make it possible, (a) Tenders should be invited for both weekly and daily services (i) from Constantinople via Baghdad to India; (ii) from Alexandretta via Baghdad to India; and (iii) from London to Constantinople or Alexandretta.

(D) 1. The India Government should be asked as to the amount of financial or other assistance they would be prepared to offer.
(ii) The Colonial Office should also be asked as to the extent of assistance which they can offer to Iraq.

Appendices give details of the basis for the cost estimates which are given.

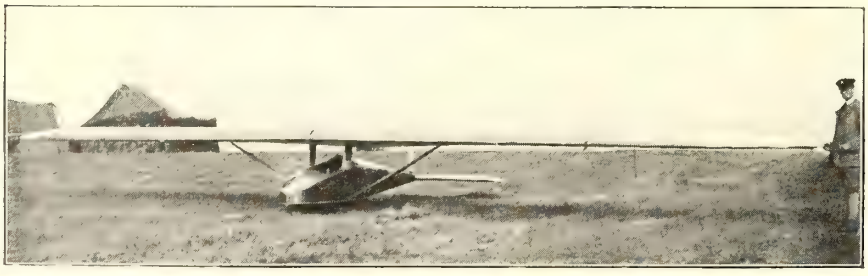
Altogether the report is not particularly hopeful reading. The suggestion which is conveyed as ti the probable total cost of carrying through any of the proposed schemes is not likely favourably to impress the general public. With the same amount of money judiciously spent on aircraft matériel for the Royal Air Force an aircraft industry capable of doing its own commercial pioneer work could be built up. And if for political purposes it is desirable to develop such a service before there is any prospect that such a service can be made to pay, it would certainly be a cheaper and more effective method simply to ask for tenders for the carriage of a guaranteed volume of mail traffic over sepcified routes, and to leave it to the aircraft industry to work out the problems involved.

THE GERMAN GLIDERS.



THE WORLD'S RECORD BREAKER.—Herr Hentzen and the Hannover "Vampyr" which flew for more than 3 hours. The machine has a span of 42 ft. 6 in. and is 17 ft. 1½ in. long and weighs 264 lbs. empty. The designer was Dip. Ing Madelung, now in the U.S.A.





THE HARTH S.12. — The machine was built by the Harth-Messerschmitt Works at Bischofsheim. The span is 14.08 metres, the length, 4.42 metres; the surface, 19 sq. metres; and the weight, 70 kgs. The wing section is "Göttingen 443" with a single box-spar. The control is by two elevators, one for each hand, each controlling the incidence of one wing.

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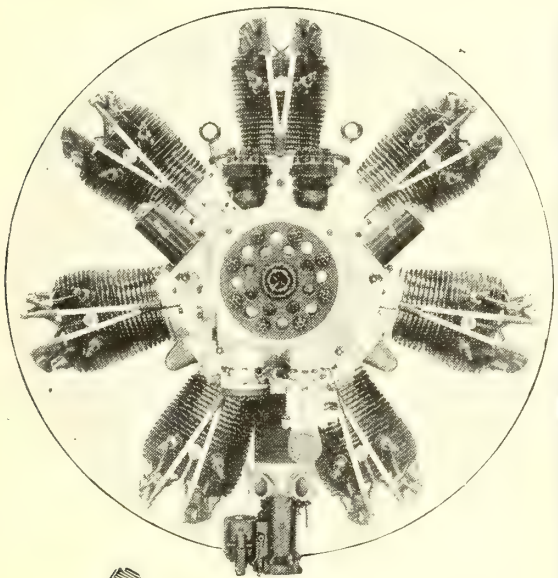
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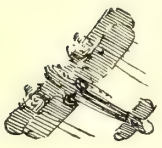
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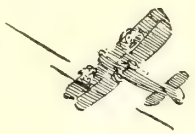
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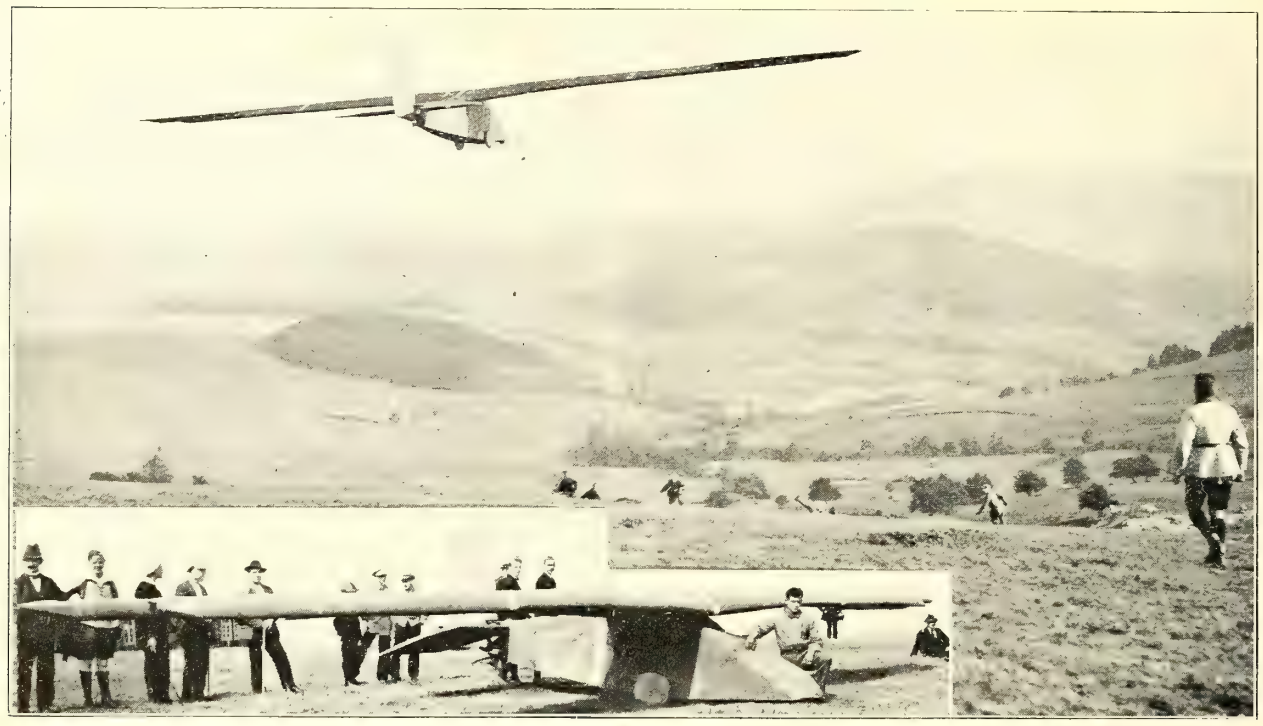
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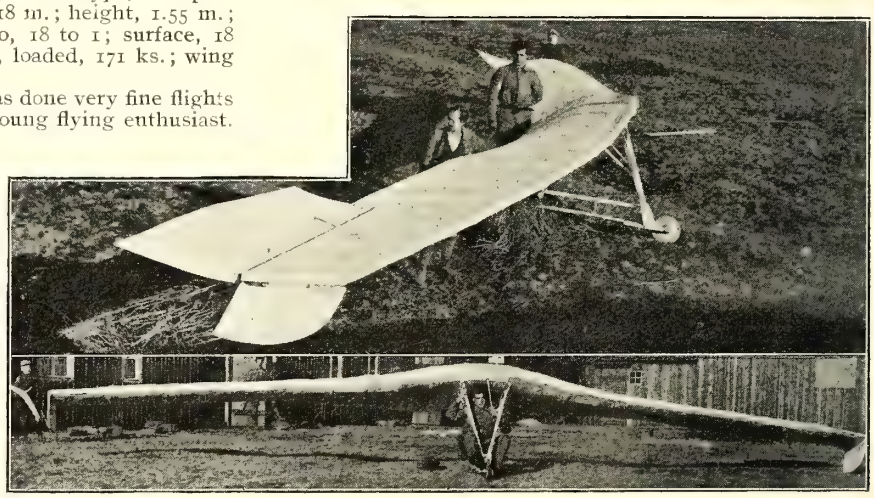
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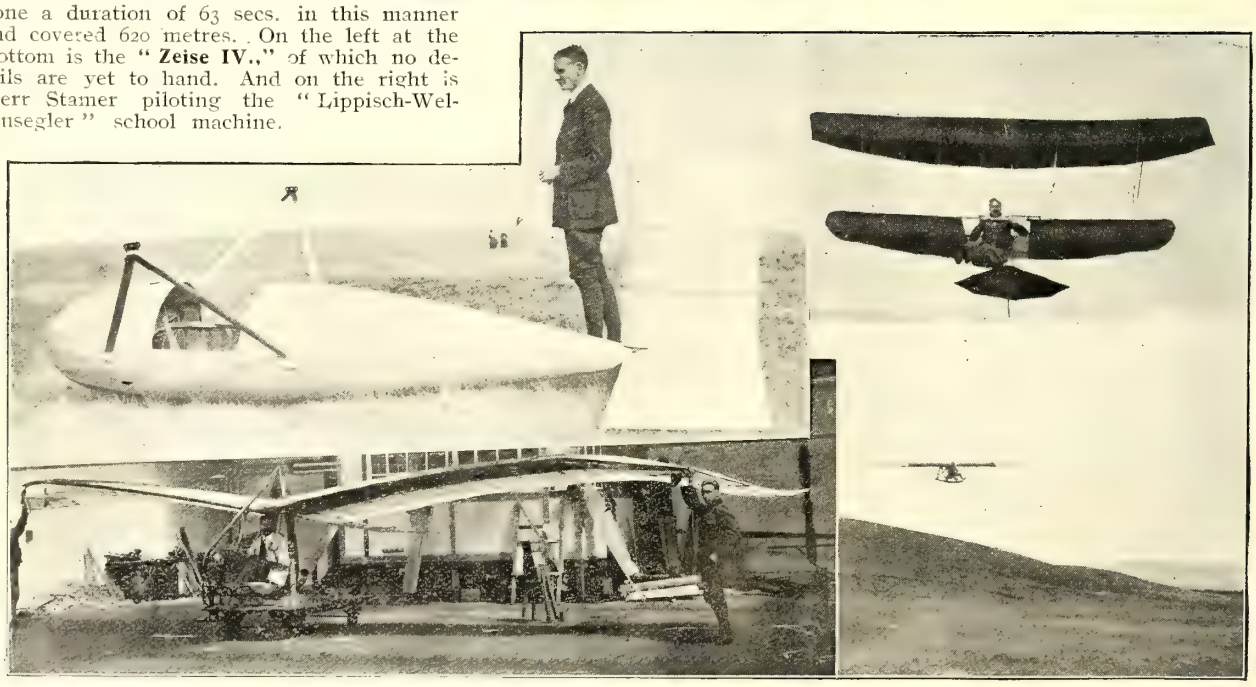
THE "ESPENLAUB" 1922 Monoplane.—Type, "Espenlaub II., 1922"; length, 5.10m.; span, 18 m.; height, 1.55 m.; wing chord, 1 m.; span to chord, ratio, 18 to 1; surface, 18 sq. m.; weight, empty, 108 ks.; weight, loaded, 171 ks.; wing load, 9.5 ks. p. sq. m.

The "Espenlaub 1922" monoplane has done very fine flights The constructor is Espenlaub, a very young flying enthusiast. The machine is flown by Schrenk. The wing is covered with three-ply in the front part and with fabric in the rear part. The special feature is the great span and the short chord, giving a good lift coefficient. The wing has one box-spar of about 18 by 22 cm. The ailerons, elevators and the rudder are balanced.



The machine on the right is the "**Espenlaub I.**" which has done glides of over 600 metres. It is evidently of the "Dunne" or "Zannonia" species.

Below is seen the fuselage of the "**München**" glider, with, on the right, Herr **Feltzner** gliding á la Lilienthal on his own machine. He has done a duration of 63 secs. in this manner and covered 620 metres. On the left at the bottom is the "**Zeise IV.,**" of which no details are yet to hand. And on the right is Herr Stamer piloting the "Lippisch-Weltensegler" school machine.



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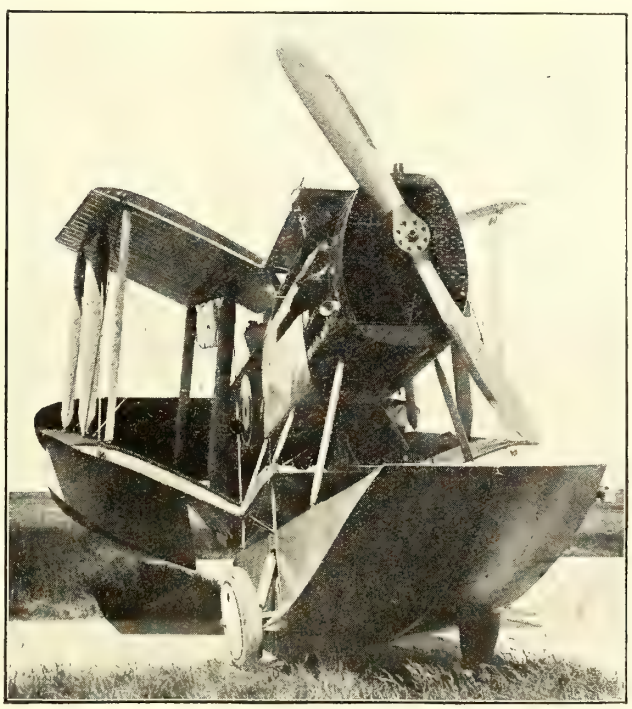
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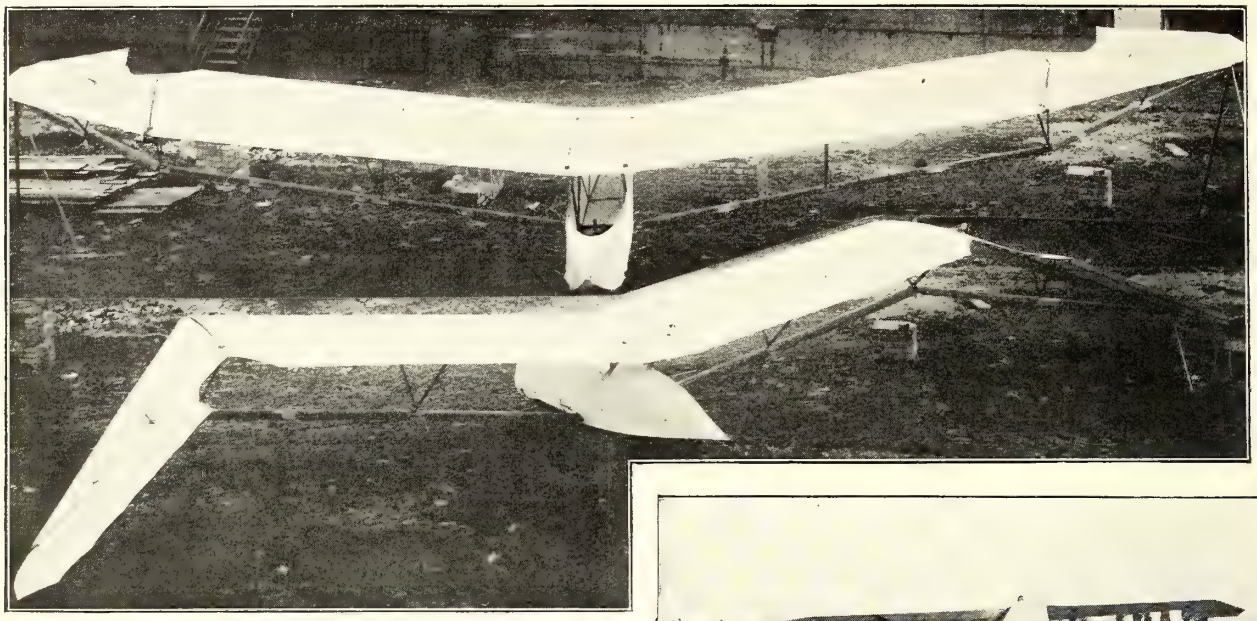
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Front View of the Parnall "Puffin," a Folding-wing Amphibian Aeroplane (Napier Engine).

This is shown as an example of the class of work done by George Parnall and Co., and supplied to the British and Allied Governments.

Any class of aeroplane for any purpose can be designed and built by the firm.

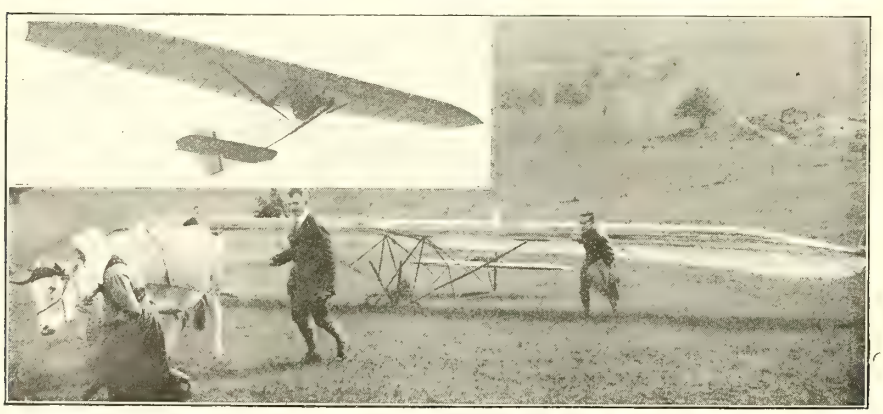


THE "FELDBERG-WELTENSEGLER" GLIDER.—Span, 15 m.; length, 3.2 m.; height, 1.9 m.; area, 17 sq. m.; weight, empty, 73 kgs.; weight, full, 148 kgs.



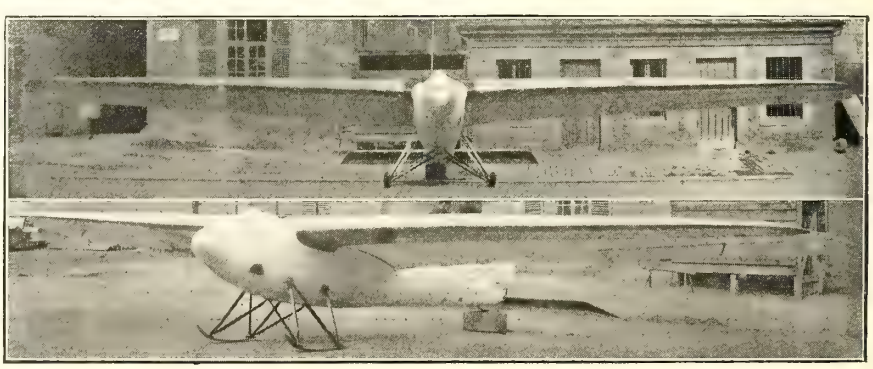
THE "BERLIN" MONOPLANE.—(On right) : Span, 15.15 metres; length, 4.5 m.; chord at tips, 3.05 m.; surface, 20 sq. m.; weight, empty, 102 kgs.; weight, full, 166 kgs. Built by the Stralsund works of the L.F.G. Company and entered by the "Akademische Fliegergruppe Technische Hochschule Berlin" (The Academic Aeronautical Society of the Berlin Technical University). There is no tail and the ailerons are used as elevators, as in the early Weiss type and the Dunne.

THE "HARTH S.10."—Span, 14.10 metres; length 4.7 m.; height, 1.32 m.; surface, 19 sq. m.; weight, empty, 78 kgs. It is of interest to note that Herr Harth habitually starts this machine without towing or other help in a 7.5 metre wind. As in the "Harth S.12" the control is with two levers, each varying the incidence of one wing, thus giving lateral and longitudinal control with a fixed tailplane and no elevator, and a rudder only for directional control. Like the "S.12" the machine has a single box-spar which is immobile, the ribs being articulated to it by duralumin sheet.



[**NOTE.** — Captain W. H. Sayers is at present in Germany studying these and other types of gliders. In his absence it has been considered advisable to illustrate as many as possible and to publish with them brief specifications so that British readers who are interested in gliding may have some data in hand. On the return of Captain Sayers much further detail will be available, and as supplies of The Aeroplane are strictly limited it will be well for gliding enthusiasts to order their copies of this paper well in advance.—Ed.]

THE "STUTTGART" MONOPLANE. — Span, 11.6 metres; length, 5.78 m.; chord, max., 1.6 m.; min., 1.4 m.; surface, 15.2 sq. m.; height, 1.86 m.; wing section "Göttingen 441" as in the "Vampyr," the "Darmstadt," and the "Dresden"; wing spars 320 by 280 mm.; weight, empty, 75 kgs.; weight, loaded, 145 kgs. Flown by Brenner, of Stuttgart. Built chiefly of 3-ply.



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CONTINENTAL ARRIVALS AND DEPARTURES.

ABBREVIATIONS:—A.D.—Aircraft Disposal Co. B.A. Berkshire Aviation Co. B.C.—Bristol Aeroplane Co. C.A.—Department of Civil Aviation. D.A.—Daimler Airway. D.H.—De Havilland Aircraft Co. G.E.—Compagnie des Grands Express Aeriens. H.P.—Handley Page Transport Ltd. I.L.—Instone Air Line. K.L.—Koninklijke Luchtvaart Maatschappij. L.A.—Leatherhead Aviation Services. M.A.—Messageries Aeriennes. M.W.—Marconi Wireless Telegraph Co. Ltd. P.O.—Privately owned. W.A.—Westland Aircraft. S.F.—Surrey Flying Services.

ANALYSIS OF FIGURES.

FOR WEEK ENDING SEPT. 3rd.

Number of trips made during week.—I.L. 27, H.P. 27, D.A. 35, M.A. 34, G.E. 12, K.L. 24.

Number of passengers carried.—I.L. 114, H.P. 178, D.A. 107, M.A. 40, G.E. 37, K.L. 30.

Total number of trips by British machines: 70 carrying 107 passengers.

STATISTICS.

Machines, 159; Passengers, 506; Crews, 272; Total Personnel, 778.

Corresponding week last year:—

Machines, 103; Passengers, 427; Crews, 129; Total Personnel, 556.

Corresponding week, 1920:—

Machines, 104; Passengers, 219; Crews, 129; Total Personnel, 348.

NOTES OF THE WEEK.

Captain Stocken and Messrs. Perry and Piercey have been testing all sorts of machines for the Aircraft Disposal Company during the week. Messrs. Perry and Piercey have been out on the D.H.9, entered by Colonel Darby, and the Rolls Royce 9a, entered by Col. Barrett-Lennard, for the King's Cup race. Both machines have been altered somewhat, the big radiator has been taken off the front of the 9a and a smaller one substituted which puts the speed of the machine up a considerable amount. Several machines have been delivered to Brussels. On recent days pupils from an associated Government have been given instruction on an Avro.

Other machines for the King's Cup race have begun to arrive by ground and by air. The Instone D.H.4a has just been reconditioned by a London aircraft firm, and by the time these notes appear will have been erected at Croydon. The D.H.9, which Mr. Muir is to fly for the Duke of Sutherland, has also been reconditioned by the same London firm and last week was being erected by the Surrey Flying Services in one of the Bessoneaux hangars. The machine was passed out by the A.I.D. representative at the said firm's works. On arrival at Croydon, however, when the machine was practically complete, it was found that it did not embody some new centre-section modifications demanded by the Air Ministry. The planes were therefore propped up with trestles and without completely dismantling the machines these modifications were inserted.

Lt.-Col. Tennant arrived from Norwich on Saturday morning on the P.9 that he will fly in the race. He did the trip from Norwich in an hour and a half, and on Sunday he was flying round, making wide circuits of the country at about 3,000 ft. The other P.9, which Mr. Holmes will fly for General Weir, is having its engine overhauled prior to Mr. Holmes' promenade of our Island Empire. Should he happen to win the race it will be a highly popular victory to say nothing of being a very amusing one also. On Sunday evening Mr. Courtney was expected in from Coventry on the Siddeley "Siskin," but did not arrive, though doubtless by the time these notes are in print he will have arrived.

A new D.H.34, G-EBBX, arrived over from Stag Lane during the week. It was delivered to the Air Ministry and was painted with aluminium. Presumably it is to be kept as a spare to be handed over to any firm requiring it and the aluminium colour will doubtless in due course be eclipsed with either Instone blue or Daimler red.

Lieutenant Stampe, who was at one time pilot to the King of the Belgians, returned to Brussels on his private Fokker D.7, O-BABY, on Thursday. The Instone Air Line continues to carry a large number of passengers on the Brussels service. It is generally expected at the aerodrome that the extension to Cologne will take place very shortly.

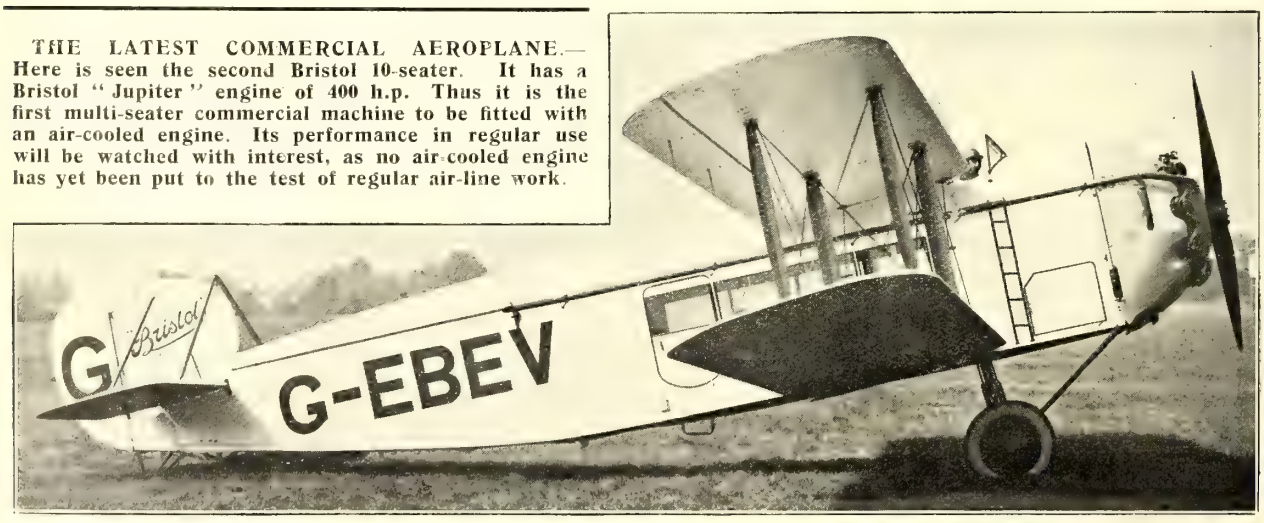
Handley Page Transport are running full as usual. It has been hoped that the Napier-engined W.8 would have been entered for the King's Cup, in fact on Monday of last week it was actually decided that it should be entered, with Major Foot and Mr. McIntosh as pilots. However, at the last moment, it was decided otherwise. This is a great pity as the advertisement gained in sending this imposing looking commercial machine up North, where such machines have not yet been seen, would have been all to the good of aviation.

The Daimler Airway are now getting quite big loads on the D.H.34s which take off nowadays with a full load with the greatest of ease. On Sunday a wireless message was received from Paris stating that Mr. Hinchliffe had left Paris with ten passengers. This caused considerable unrest at Croydon, because though there are in fact ten seats in the inside of the D.H.34, only nine of them are commonly in permanent use during the trip (the tenth one being used spasmodically), and Air Ministry regulations do not allow a passenger to sit on the outside seat beside the pilot unless he is an employee of the firm. However, when the machine arrived, it was found that all the ten passengers actually were inside, where an eleventh seat had been installed. Moreover the weight of the passengers was under the licensed load of the machine. Mr. Hinchliffe told one that the machine took off like a rocket at Le Bourget.

Those responsible for the advertising of air lines should really be more careful as to the company kept by the sandwich men who bear their advertisements. On a recent day in London one saw a sandwich man of a certain air line walking down the Haymarket conversing amicably with a similar gentleman advertising the new play at the Duke of York's, called "The Broken Wing." The two were parading as though one unit and such a combination should be discouraged as it might seem somewhat suggestive to the general public, who should not be thus enterrored.

One understands that Mr. Donald Herne is to be a competitor in the *Daily Mail* Gliding Competition next month on a De Havilland Glider. It is considered that in this Mr. Herne will start with a rather unfair advantage, because not only does he know all there is to be known about gusts, but he is also on very familiar terms with lightning, so not only will he be able to harness the gusts, but also he will doubtless receive special aid from the said lightning.

Incidentally, one would like to deny that the site chosen for the *Daily Mail* Gliding Competition is at Westminster, in the neighbourhood of the lair of a famous "air expert." The continual upward current of hot air would doubtless be of great use to the competitors, but if the expert became absent-minded and thoughtlessly went out for a walk without warning it might necessitate a forced landing on the surrounding houses.



THE LATEST COMMERCIAL AEROPLANE.—Here is seen the second Bristol 10-seater. It has a Bristol "Jupiter" engine of 400 h.p. Thus it is the first multi-seater commercial machine to be fitted with an air-cooled engine. Its performance in regular use will be watched with interest, as no air-cooled engine has yet been put to the test of regular air-line work.

The Surrey Flying Services have been very busy again this week-end, and Mr. Muir and Mr. Youell on Sunday afternoon were flying continuously in the Avro. On the previous day a member of the Royal Aero Club was also performing on an Avro.

Mr. Shaw has been recalled from his leave, presumably to keep everyone's spirits high, though his own seems rather low over his curtailed holiday.—G. D.

De Havilland Work.

The following is a summary of the flying carried out on the De Havilland Aeroplane Hire Service during the month of August :—

Lympne-Ostend Service has run without fail throughout the entire month, having completed 127 hours flying and carried 43 paying passengers and 32,000 lbs. load.

Manchester Saturday Service has run each week during the month with complete regularity.

Among other flights carried out on the Hire Service the following towns were visited :

Dublin, Clermont-Ferrand, Isle of Wight, Southport, Sheffield, Vienna, Norwich, Hull, Leeds, Cardiff, Bristol, Seaford, Dover, Glasgow, Edinburgh, Birmingham, Wimbourne, Ashford, Deauville, Salisbury, Digby.

There has also been the usual Dual Control Instruction on D.H.6 and D.H.9 machines. The number of pupils now receiving instruction is seven.

The total number of flying hours (Lympne service excluded) amount to 162 hours.

Brooklands.

There is enough work in hand at the Vickers works to keep the employees working, but not sufficient to cause overtime to be necessary. A number of small orders are being executed. Two "Vulcans" are being built for a private Australian firm. Two "Vulcans" belonging to the Instone Line are being repaired. Mr. Douglas Vickers' "Vulcan" is being prepared for the King's Cup. One understands that this is a perfectly standard "Vulcan."

Recently various representatives of the Russian Trade Delegation visited the works in order to see a "Vimy" commercial and a "Viking," which had been built for them, tested. The tests were quite satisfactory, as were the water tests (three "unstickings" and three "landings") done with the "Viking" off the Isle of Wight.

One of the two "Vikings" constructed for the Air Ministry has been doing well on test at Martlesham Heath, the other is incomplete. Two "Vikings" are to be sent to the Argentine, and various small Powers and foreign firms have given small orders for machines.

The first "Victoria"—24-seater troop-carrier—was successfully flown on its first test recently. A commercial version, the "Vanguard," is being modified to carry 23 passengers and two pilots. The "Virginia," very similar to the "Victoria," but a long-distance bomber, will be out shortly. These machines are larger in span, chord, gap and overall dimensions than the "Vimy," and differ mainly from that type in ailerons, controls, and wing-section. They have two Napier "Lion" engines.

Captain F. C. Broome has just returned from Japan and China, where he has been acting generally in the interests of the firm, and in particular flying "Vimy" and "Vikings" in order to demonstrate their excellent qualities. Both on the outward and the homeward journeys he visited Canada, and received excellent reports of the work of the "Viking" which was sent out there for forest exploration, surveying, and other purposes.

In addition to the machines mentioned above various experimental machines are in hand about which nothing can be said at present.

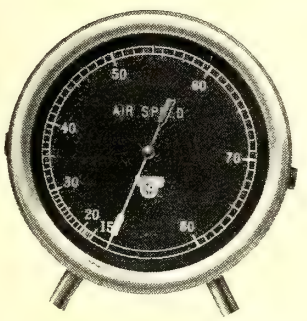
Mr. Raynham was up on his "F.6" the other day, handling the machine in his usual skilful way, his vertical "banks" being especially fine.—J. F. S.

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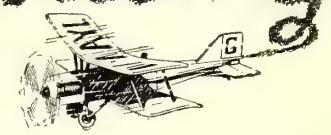
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De Havilland Aircraft Co., Ltd., The, Stag Lane Aerodrome, Edgware. "Havilland," Edgware. Kingsbury 160-1 (2 lines) 189
Fairey Aviation Co., Ltd., The, Hayes, Middlesex "Airily," Hayes, Middlesex. Hayes, Middlesex 19 183
Parnall, George, & Co., Coliseum Works, Park Row, Bristol. "Warplanes," Bristol. Bristol 4773 (2 lines) 191
Roe, A. V., & Co., Ltd., Newton Heath, Manchester. "Triplane," Manchester City 8530-1, Manchester *Inside Front Cover*
Short Brothers (Rochester & Bedford), Ltd., Seaplane Works, Rochester, Kent. "Seaplanes," Rochester. Chatham 627 ... *Inside Back Cover*
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Vickers, Ltd., Vickers House, Broadway, London, S.W.1. "Vickers," Vic, London. Victoria 6900 185
Westland Aircraft Works, Yeovil. "Aircraft," 141 Yeovil. Yeovil 141 186

AIR LINES.

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Instone, S., & Co., Ltd., 51, Leadenhall Street, London, E.C Avenue 3616-7-8 195

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ENGINES.

Armstrong Siddeley Motors, Ltd., Coventry "Sidarm," Coventry. Coventry 954 189
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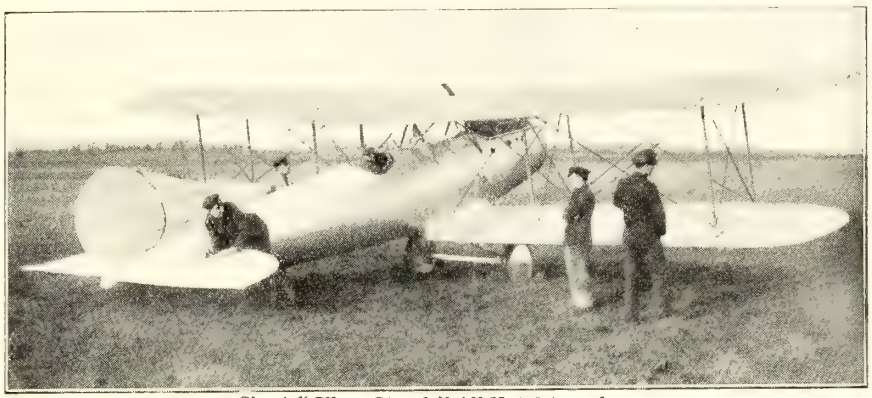
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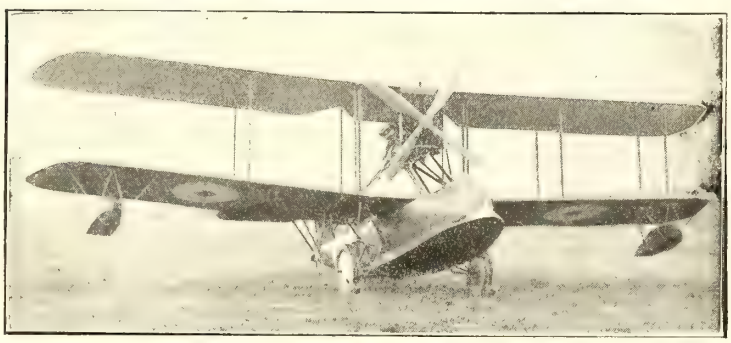
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WEDNESDAY, SEPT. 13, 1922.

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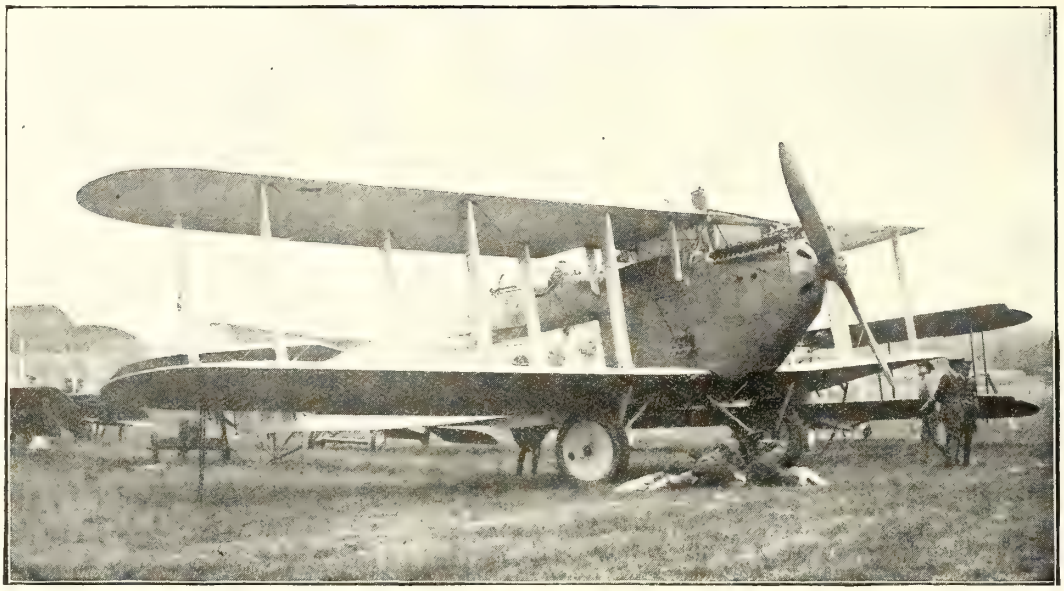
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SEPT. 13. 1922.

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ON THE KING'S CUP RACE.

When His Majesty the King was graciously pleased to present a cup to the Royal Aero Club for competition in an air race he expressed his wish that the race should be run under conditions which would further the progress of Civil Aviation. The cup has been won by an antiquated de Havilland biplane of 1916 design built during the War, transmogrified, overhauled, tinkered, and repainted over and over again, and driven by a 1916 type engine. The second and third and fourth and fifth and sixth machines were almost equally ancient. Thus was demonstrated how little real progress we have made in the past six years, thanks to the war. Nothing could be better for the progress of Civil Aviation than this definite exposure of the fact that practically we have made no progress at all.

Some day some few years hence when prosperity again returns to this country and aircraft firms can afford to build special aeroplanes for big races and wealthy sportsmen have been educated up to paying for the building of such special machines, if His Majesty—whom may God preserve, till then and long after—be again pleased to offer a Royal prize, we may see a real King's Cup Race as it should be. But in the meantime the Royal Aero Club has done the best that could be expected of it. It has provided a very fine race which has stirred the interest of many millions of the people of this country. And to that extent also the race has furthered the progress of Civil Aviation.

The Only Worthy Race.

There is only one form of race which could really fulfil the King's wish. That is a race in which every machine is compelled by regulation to have an engine not exceeding a given cubic capacity of cylinders, is compelled to demonstrate that it can fly with a certain specified useful load at not more than a certain specified low speed, and is compelled to carry that specified load through the race.

Then it would be up to the engine-makers to get the greatest possible power out of the engine capacity and it would be up to the aeroplane-makers to get the maximum speed with the power available, after demonstrating that their machines could fly and land slowly. Under such conditions we should really make progress.

High-speed low-compression engines would be put up against low-speed high-compression engines. Carburetters would be up against direct injection. Petrol would be up against heavy oil. Lightly loaded flat wings would be up against high-lift heavily loaded wings. Variable camber would be up against slotted wings and variable surfaces, and against theoretically perfect forms of wings and fuselages. Wood construction would be up against steel.

Everybody would be out to achieve the best results and nothing else, for there would be the fixed engine capacity, the fixed load and the fixed low speed. Designers would have a completely free hand. There would be no dodging regulations, for any successful dodge would represent real progress and so would cease to be dodgery. There would be no handicapping for all would start from scratch, and so there would be no dissatisfaction among competitors. There would be no beating the flag and having time put on at the other end of a stage for when the flag fell all would start or would be reckoned non-starters.

Thus and only thus can there be a competition worthy of the King's gracious approval. But such a competition is still a long way away. For in the present state of trade nobody can afford to build special aeroplanes for special events. Therefore it is to be hoped that His Majesty may be pleased to encourage Civil Aviation by putting up a Challenge Cup to keep the King's Cup Race going during the next few years, seeing that the first King's Cup has been won outright.

With that in mind let us turn to the happenings of this historic event. As every member of the staff of this paper and its various correspondents saw the race from a different point of view it is proposed to make the report a series of purely personal narratives, and those who read them "pays their money and takes their choice" as to what they believe and what they don't. As editor of THE AEROPLANE, I have naturally given myself the most pleasant job of describing the start and finish and of discoursing at large on anything else. So let us to the start:—

At the Start.

Friday Morning, September 8th, gave us real Aero Club weather. Except that it did not rain it was as beastly as it could be. There was a cutting north wind blowing straight up the aerodrome bringing with it all the London dirt, the mist of the Thames Valley and the clouds from the high country north of London. Even when the sun made gallant efforts to get through it only impressed on shivering humanity the truth of Mr. G. W. Baskomb's great thought that if a cloud has a silver lining there are darker clouds behind.

Everybody who is anybody in aviation (almost) was there. And everybody who was there was feeling good and acid as the result of having to get up in the middle of the night to get to Croydon well before 09.00 hours official time, which being 08.00 solar time was long before the streets were properly aired. The only people who looked and felt worse were those who to make sure of being in time had not gone to bed at all, and they had pink eyes instead of gummy ones.

The result naturally was that for one priceless morning it was possible to recapture some of the joy of the pioneer days of aviation when humour had the true *morituri te salutant* flavour. For instance, when the machines were being lined up for the start a uniformed chauffeur marched solemnly along the line bearing an enormous horseshoe of white heather, studded with little red things which looked rather like tomatoes (to indicate nails presumably) and tied up with blue ribbons. The points of the shoe approached rather closely, and anyhow only the top part was really noticeable, and neither the weather nor the occasion suggested floral decorations. So what more natural could happen than that one of the Haupt-Kommandants, so to speak, of Civil Aviation should jerk a thumb towards it and remark grimly, "Bit early in the morning for wreaths, isn't it?" I endeavoured to explain that it was probably only an exposition of the Einstein theory of relativity, a sort of modern revival of the Egyptian skeleton at a feast, or like the text "In the midst of life we are in death," or "Let us eat drink and be merry for to-morrow we die," a wholesome reminder that on such a beast of a morning we were only relatively alive.

Then we discovered that it was a method of wishing *bon voyage* and good luck to the Instone pilot, Mr. Barnard, a sort of "Present for a Good Boy" scheme. Anyhow it seems to have worked, and if he had crashed it would still have come in useful. The idea has much to recommend it, and doubtless at future big races we shall see carloads of wreaths arriving for the pilots ready for use in any eventuality either to crown a living victor or to grace his obsequies.

The First Off.

The first away was S/Ldr. Payn, the Air Ministry test pilot, on Mr. Fildes' "Baby" Avro. To be candid I did not see him start, because in taking the corner off Mitcham Common I had pulled a tyre off the editorial Talbot in the endeavour to sit on the tail of an Air Ministry car which appeared to be in a hurry. I believe it was the weight of Major Kingsley's responsibilities sitting in the back seat that did it, or else Master "Buster" Kingsley, *aetat* 4½, in the front seat put a hoodoo on it. Anyhow changing the wheel lost us the few minutes needed to get to Croydon in time.

When we arrived F/Lt. Longton was getting ready to start on Colonel Frank McClean's "Gnu" and a squad of R.A.F. mechanics were in pairs tearing their little insides out trying to get his Le Rhône to fire. Then the Heavenly Twins, Captains Broome and Cockerell, lent a friendly hand, and in duet swung that prop till the engine very nearly got going. Well-wishers kept on doping the cylinders and it was a case of "petrol, petrol, everywhere." The flag fell and nothing happened.

Then after more swinging there was a feeble "floop" from the engine and the cowl and the ground below burst into flames. The air mechanics danced in the flames like priests

of Baal, still trying to start the engine. Then some brilliant person suggested pulling the machine back in case the whole thing might catch fire. Which was duly done. Then it occurred to somebody that somewhere there might be a thing called a fire extinguisher, and after a while one of the aerodrome officials brought one and squirted the fire, which duly expired.

After which Mr. Longton climbed philosophically out of the machine and set to work to locate the trouble. Ultimately he found that a cracked high-tension terminal was shorting in the distributor. That was bound up with the ever-helpful sticky tape (which is not really an insulator at all) and eventually he got away 25 minutes late, still with that sad resigned smile of his, while Colonel McClean, reduced to the " there ain't no words " stage, strode the sward seemingly devoured by internal fires far worse that that which had just expired. It was rotten luck, for Colonel McClean had bought the machine outright from the Receiver of the Sopwith Co., and Mr. Longton was sacrificing well-deserved leave to fly it. Still they both took their luck in the proper sporting spirit.

While this contest with circumstances was in progress Major Carr went away on the Avro " Lucifer " entered by Mr. John Lord, the big three-cylinder engine firing beautifully. He seemed to have quite a sporting chance of getting round in good time, and he seemed quite cheerful. Doubtless his Antarctic experiences had made him immune to the rigours of an English summer.

A Relic of the Past.

After that came a change of interest. Lt.-Col. Spenser Grey started on the first Blackburn " Kangaroo," one of the only two twin-engined machines in the race. Colonel Grey has been suffering for some months from a clot of blood in a leg artery (known scientifically as *phlebitis*) and in theory a patient so afflicted should lie down and keep on lying down till the clot is absorbed, because if a piece of the clot detaches itself it may cruise round the system till it jams in a heart valve or in a brain cell and puts the human engine permanently out of action. That being so it was quite natural that Spenser Grey, having all the hereditary cussedness of his family, should want to go flying, and on a twin-engined machine at that. Some people wanted to know whether pilots as well as machines were not obliged to have airworthiness certificates, and whether flying for a prize was not flying for hire or reward. I could only reply that this pilot at any rate was obviously not flying for a prize.

Anyhow he hobbled out with one foot in a slipper and the corresponding leg swathed in bandages and looking like the gouty uncle of the humorous artists, climbed into his machine, loaded up with Wing-Commander Risk and a mechanic or two, and went off in a series of hops which justified the name of the machine. Once in the air he flew quite nicely, but obviously his machine had no chance in the race, especially on such a day.

What induced Col. Grey to choose a " Kangaroo " for this job, seeing that he was Mr. Winston Churchill's representative in the race, one cannot imagine. The poor old thing dates back to 1915 or 1916 as a design, and these two particular specimens were flying joy-rides at the Amsterdam aero-show in 1919. In their day they were quite good aeroplanes, and did lots of work on coast-patrols, but as civilian aeroplanes they are about as uncommercial as can be. One would have thought that with the reflected glory of Mr. Churchill's name as the entrant it would have been possible to have leased something really modern, such as a D.H.34 not yet delivered to its buyer, or a camouflaged Blackburn " Dart," or something of that sort.

It is really a great pity that Mr. Churchill was not represented by a more modern machine, for he has done more for aviation than any Minister of the Crown has ever done, and when he came forward so sportingly to spend his private means on aviation he ought to have been given something which was a serious competitor in the race and not merely a joke. If ever again Mr. Churchill comes out as an air-race " owner " one hopes that he will not be represented by an obvious " also ran."

An Interesting Tourer.

The next starter was Mr. Cyril Holmes on a Boulton and Paul, P.9, entered by General Weir. " Cy," as he is familiarly called, went off as unconcernedly as if he had merely been going to Paris and back instead of taking the little 90 h.p. touring machine over untracked moor and mountain where in case of a crash he might be lost for weeks. He just beamed benevolently at the starter and paddled off, with the old 90 Raf engine blowing oil out of its crank-case vents onto the wind-shield in the old familiar way. The quietness and the obvious speed of these little P.9s. were one of the most impressive things in the race.

The little P.9 was followed by Mr. Kenworthy on the second "Kangaroo." He held the machine down till well beyond his ordinary flying speed and then went up in a spectacular bound as if somebody had stepped on the kangaroo's tail. Somehow it seemed unkind to make the poor old thing perform such antics. Sir Walter de Fries, or de Frece, or however he spells himself, like Mr. Churchill, ought to have been represented by something less ancient. It is no encouragement to public men to back the sport of flying if they are asked to pay for running the ancestors of aviation. This " Kangaroo " carried Major C. C. Turner, of the *Telegraph* and *Observer*—whose graphic description of this voyage to Manchester makes me wish that he had chosen another mount and gone farther. Still if he had done so, " our Mr. Clarkson " might have been crowded out.

The Owner-Driver.

Next went Lt.-Col. Tennant on another Boulton and Paul P.9. Col. Tennant was the first " Owner-Driver " to start in the race. After commanding the R.F.C. in Mesopotamia with success, being captured by the Turks, and sundry other adventures he came home when the war was done and wrote " In the Clouds above Baghdad," one of the very best books ever written about air war or about Iraq. It came out too late after the war to win the popularity it deserved.

Since then he has been " something in the City," where I am told he is amassing a handsome fortune. All the more credit is due to him for spending part of that fortune in flying. It is a pity there are not many more like him. Evidently his City work has not spoiled his eye and hand for his get-off was as neat as anything in the race. Just why he had to give almost 9 minutes to Mr. Holmes on the same machine I do not know, but evidently the handicappers did for his machine certainly seemed to be faster than its sister.

After him, just by way of contrast went Capt. Cockerell on the huge Vickers "Vulcan," Mr. Douglas Vickers' own entry. The machine was handicapped with one passenger, but Capt. Cockerell, with the consent of General Caddell, who was in charge of the arrangements, very kindly agreed to take THE AEROPLANE'S representative, Mr. Clarkson, as a bit of make-weight, so " Our Special Correspondent " was the only newspaper man to get round the course, thanks to the reliability of the Cockerell cum Vickers cum Rolls-Royce combination. He tells his own story elsewhere. The "flying pig," as some people call it who know it only by sight and not as pilots, got off with a very short run and seemed to float into the air without waving about as all the others did.

An Assorted Bunch.

It seems impossible to separate the Heavenly Twins, for even the chances of the handicap decreed that Capt. Broome should follow Capt. Cockerell. He took off the Avro "Viper" entered by Mr. A. V. Roe. This machine has the wonderful Avro oleo-undercarriage which refuses to be crashed, and as events proved it was just as well it had.

Next went F/Lt. Rollo Amyatt de Haga Haig, who so nearly won the Aerial Derby Handicap with the Bristol " Bullet." This time he flew the winning machine, the little Bristol " Lucifer " monoplane, entered by Sir Henry White Smith. As usual the engine ran like a clock and the machine got away easily and cleanly. Mr. Haig is one of those neat-handed pilots who is just as much at home on a flying visiting card as on an aerial tank.

The next starter was undoubted the most popular in the race, Mr. Fred Raynham, the second " Owner-Driver." He had bought, overhauled and tuned for himself an aged F.6 Martinsyde and had fitted to it an equally antiquated "Viper" engine of about 180 h.p., which is in reality an early type Hispano-Suisa built about the middle of the war and somewhat modified by the Wolseley Co. By sheer industry and skill he had succeeded in getting excellent results out of the combination, and unfortunately the handicappers knew it.

For this race he had painted the machine bright yellow so that, as one humorist suggested, the daily Press might say " He leapt wasp-like into the air,"—which of course the daily Press did not say, as he had omitted the black stripes. As it was the machine looked bilious and was an offence to the eye at that hour of the morning. Nevertheless it flew very well indeed, as events subsequently proved.

After him went Mr. Cyril Uwins on Sir Stanley's White's big Bristol 10-seater with the " Jupiter " engine. She had left Bristol the previous Tuesday and was reported down at Netheravon with petrol trouble. Not long after the first few machines had started she came in and taxied over to the enclosure. There the whole engine-unit was swung out on its own frame, like opening a door, and search was made among the electrical gadgets for the cause of the persistent pre-ignition which had brought her down. Some trouble with the contact-breaker was discovered and put right, and she was up to the starting line long before her time. She left in very good style when signalled.

The D.H. Procession.

After her came a long string of De Havillands of all sorts and sizes and dates, but chiefly the old trusty " nines " with Siddeley " Puma " engines.

THE COMPETITORS FOR THE KING'S CUP.



THE TWENTY-ONE STARTERS.

1. The Winner, Mr. F. L. Barnard's D.H.4a (360 h.p. Rolls-Royce "Eagle VIII.") 2. The Runner-up, Mr. F. P. Raynham's "Tinsyde" (200 h.p. "Viper.") 3. Mr. C. F. Uwins' Bristol ten-seater (400 h.p. "Jupiter.") 4. Mr. Alan J. Cobham's D.H.9 (230 h.p. Siddeley "Puma.") 5. Mr. F. T. Courtney's Siddeley "Siskin" (350 h.p. Siddeley "Jaguar.") 6. Mr. R. A. de H. Haig's Bristol Monoplane (100 h.p. "Lucifer.") 7. Mr. M. Piercey's D.H.9 (230 h.p. Siddeley "Puma.") 8 Mr. Cyril Turner's S.E.5a (200 h.p. "Viper.") 9. Mr. Cyril Holmes and his Boulton and Paul P.9 (90 h.p. R.A.F.) 10. Mr. A. S. Butler's D.H.37 (275 h.p. Rolls-Royce "Falcon.") 11. Mr. W. H. Longton's "Gnu" (110 h.p. Le Rhone.) 12. Lt.-Col. J. E. Tennant's Bolton and Paul P.9. (90 h.p. R.A.F.) 13. Mr. A. F. Muir's D.H.9 (230 h.p. "Puma.") 14. Lt.-Col. Spenser Grey's Blackburn "Kangaroo" (two 275 h.p. Rolls-Royce "Falcons.") 15. Mr. F. C. Broome's Avro "Viper" (200 h.p. "Viper.") 16. Mr. H. H. Perry's D.H.9a (360 h.p. Rolls-Royce "Eagle VIII.") 17. Mr. R. W. Kenworthy's Blackburn "Kangaroo" (two 275 h.p. Rolls-Royce "Falcons.") 18. Major C. R. Carr's Avro "Lucifer" (100 h.p. Bristol "Lucifer.") 19. Mr. Leslie Hamilton's D.H.9c (230 h.p. Siddeley "Puma.") 20. Mr. S. Cockerell's Vickers "Vulcan" (360 h.p. "Eagle VIII." Rolls-Royce.) 21. S/Ldr. H. J. Payn's "Baby" Avro (35 h.p. Green.)

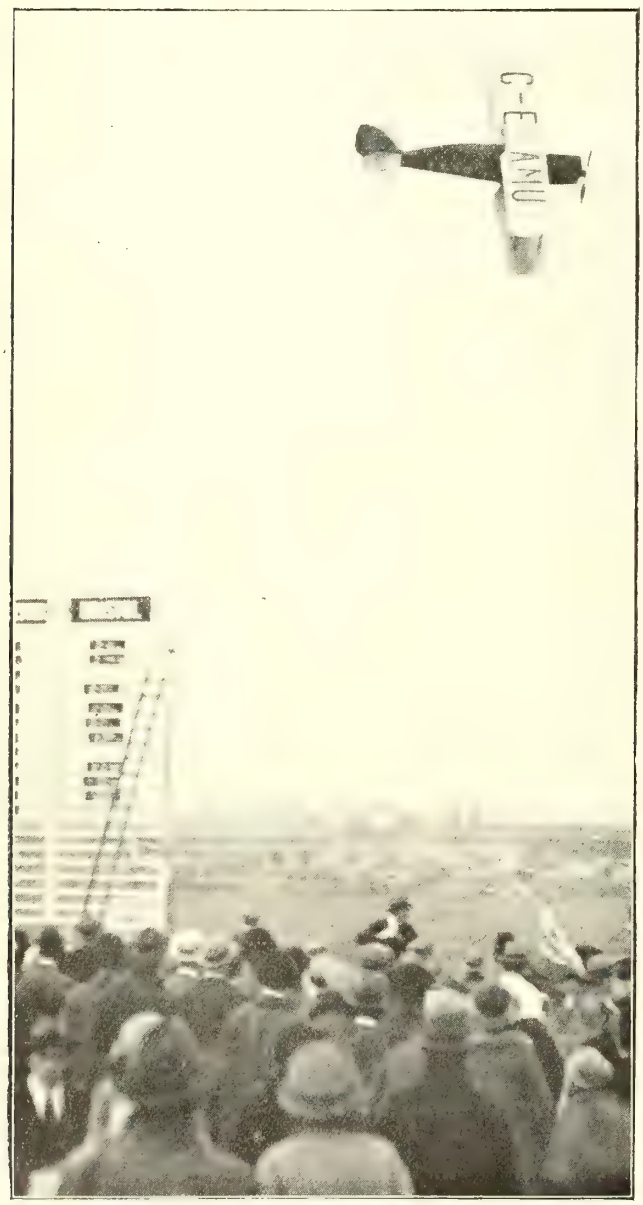
First away was Mr. Alan Cobham with a mechanic on Capt. Geoffrey de Havilland's very own 9b, a well-tried machine which promised to do well. She is the oldest D.H.9 in the world, having been built early in 1917.

Next was F. O. Leslie Hamilton's 9c, entered by Princess von Lowenstein-Wertheim, who flew the Channel as a passenger with the late Rowland Ding on a Handley Page biplane *before* the war, and who after the war enquired about a machine capable of flying the Atlantic with which machine rumour insisted that she intended to abduct the Kaiser from Holland, but whether with the idea of dropping him into the sea or of installing him as Emperor of the United States of America one cannot even guess. With Mr. Hamilton was Mr. Luxmore as mechanic, and the "owner-ess" occupies the cabin, where she could be ill in peace.

Then went Capt. A. F. Muir with Mr. Grant, on the Duke of Sutherland's 9. He was also well supported (in the Turf sense).

The next was Mr. Alan Butler, on the D.H.37, named "Sylvia," the latest of all D.H. products. Mr. Butler, now a director of the De Havilland firm and of the Aerial Survey Co. (Newfoundland), was the third "Owner-Driver" in the race, "Sylvia" having been designed and built especially for him. She is not a pretty machine, being too straight in her lines, but she is a fine job of work and flies excellently with her Rolls-Royce "Falcon."

Next went Mr. Piercey (known locally as "Count Vodka," solely because he has once been to Russia and wears a coat with an astrakhan collar) on a D.H.9. This machine was streamlined in to the last ounce and made quite a pretty example of typical Disposal Co. work.



THE WINNER.—Mr. F. L. Barnard on Sir Samuel Instone's D.H.4a (Rolls-Royce) passing the winning-post at Croydon and thereby winning the King's Cup.

Following him was Mr. Perry, recently in Roumania, on a D.H.9a with a Rolls-Royce "Eagle." All these D.Hs. got off perfectly and the race looked like a good thing for any of them. As somebody said when he looked at the programme, "It seems that the motto in Civil Aviation is 'When in doubt use a De Havilland.'"

After him for a change came a collateral De Havilland design, an S.E.5a with a "Viper" engine, flown by Mr. Cyril Turner (the third Cyril in the race) for Major Jack Savage or "the gas-man" as some ignorant person called him on the strength of his aerial sign writing and the *Daily Mail's* report of his gas-attack theories for future wars. The old S.E. was painted pure white and was promptly named "the Whited Sepulchre" by a malevolent person who asked Major Savage what he meant by it after defiling the sky with his mephitic smoke-clouds. Mr. Turner got away in proper S.E. fashion with a rush and a jump.

A Regrettable Incident.

Then occurred the one regrettable incident of the day. Mr. Barnard, starting on Sir Samuel Instone's D.H.4a, went off 10 seconds before the starter, Mr. George Reynolds, dropped his flag. The machine was the old G-EAMU, the original Instone Paris-London machine, of the days before there was any Instone Air Line, Limited or unlimited. How many times she has been retired from service, put into reserve, pulled out again, "made over" (as the women-folk say about their frocks), repainted, and set to work anew, I hate even to think. But like all the De Havilland stuff she seems capable of going on for ever.

This time in addition to her usual verbal and literal decorations she bore boldly on her blue sides in white the words, "Instone Air Line Ltd., King's Cup Machine." The programme had her down as a personal entry by Sir Samuel Instone, but presumably the staff of the Instone blue-paint works thought they knew better or were carried away by *esprit de corps* or something. Anyhow they saw to it that the "old firm" did not lose its advertisment in the eyes of the admiring millions at the various controls. Apparently somebody in the firm is by way of being a prophet, for she did turn out to be the King's Cup machine.

Anyhow, old G-EAMU's "Eagle" Rolls-Royce was set going and the usual crowd gathered round. Mr. Reynolds raised his flag as a signal that there were still ten seconds to go, Mr. Barnard opened his throttle, and away went the pride of the Instone Line.

Naturally most people thought that Mr. Barnard would be disqualified for starting before the flag fell and would be pulled out of the race at the first stop, Birmingham. But apparently somebody in authority in the Royal Aero Club thought otherwise, so instead of abiding by the rules as set forth to the pilots it was agreed that the ten seconds should be added to his starting time from the next control. Which was duly done. And so Mr. Barnard remained in the race and won it.

The Rules of Sport.

Now of course I am very pleased that Mr. Barnard won the race and appropriated the various prizes for the first pilot to reach Glasgow and for the first to reach Croydon, and I am very glad that Sir Samuel Instone has acquired the King's Cup "for keeps" to grace his Knightly sideboard, and all that sort of thing. But I do protest that under the rules of any other sport on earth of which I have ever heard those prizes and that cup would belong to Mr. Fred Raynham. And I firmly believe that if Mr. Raynham were not a single-minded sportsman, or if he had a commercially-minded firm behind him, he could legally demand the lot from the Royal Aero Club.

In every known sport starting before the flag falls or beating the pistol involves disqualification.

If a yacht crosses the line before the gun goes it has to put about and cross it again, thus losing the time taken in doing so. If a runner in a sprint race tries to be clever and start with the pistol-shot but is a little too clever and starts in front of it the starter signals a false start and the runners form up again. If the same runner tries it on a second time he may be disqualified, though the starter sometimes uses his discretion and puts up with several false starts.

In the days before starting gates if a horse got away before the flag fell a false start was declared and a fresh start was given. And I believe that a consistently troublesome horse or jockey could be put off the course. The same rules hold to-day on courses where no starting gate exists.

At any rate I have never heard of a horse beating the flag, winning by a length and then being given the race on a verdict of "won by half a length" because he only got away half a length before the flag fell. Nor have I ever heard of a runner who beat the pistol having his extra gain knocked off at the other end. Nor can I imagine Colonel Lindsay Lloyd at Brooklands deducting at the end of a car race the

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1st in the ROYAL AIR FORCE HANDICAP
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THE STATISTICS OF THE KING'S CUP RACE.

Place.	Identification Mark.	Pilot.	Entrant.	Aeroplane.	Engine.	Croydon Depart	Glasgow 394 miles Arrive and Depart		Croydon 810 miles Arrive	Speed Over Whole Course
						H M S.	H.M.S.	H.M.S.	H M S.	
—	G-EAUM	S/Ldr. H. J. Payn	Henry Fildes, M.P.	Avro "Baby"	35 h.p. Green	9-0-0	19-45-00	9-58-10	—	—
—	G-EAXL	B. Hinkler	Sir W. Letts, K.B.E.	Avro "Baby"	35 h.p. Green	Non-Starter	—	—	—	—
8	G EAGP	F/Lt. W. H. Longton, D.F.C., A.F.C.	Lt.-Col. F. K. McClean, A.F.C.	Sopwith "Gnu"	110 h.p. Le Rhone	9-24-58	18-32-08	9-07-36	17 13-57	77
—	G-EADA	Major C. R. Carr	John Lord	Avro "Lucifer"	100 h.p. Bristol "Lucifer"	9-34-27	Stopped	at	Halifax	—
—	G-FAMJ	Lt.-Col. Spenser D. A. Grey, D.S.O.	The Rt. Hon. Winston S. Churchill	Blackburn "Kangaroo"	2-275 h.p. Rolls-Royce "Falcon"	9-54-14	Dropped	out at	Newcastle	—
9	G EASJ	C. T. Holmes	Brig.-Gen. James G. Weir, C.M.G	Boulton & Paul P.9	90 h.p. R.A.F. 1A	10-1-52	18-42-50	9-58-16	17-41-50	78
—	G-EAIU	R. W. Kenworthy	Sir Walter de Frece	Blackburn "Kangaroo"	2-275 h.p. Rolls-Royce "Falcon"	10-4-18	Dropped	out at	Newcastle	—
11	G-EAWS	Lt.-Col. J. E. Tennant, D.S.O., M.C.	Lt.-Col. J. E. Tennant, D.S.O., M.C.	Boulton & Paul P.9	90 h.p. R.A.F. 1A	10-6 41	18-54-01	10-13 32	17-57-35	79
7	G-EBEM	Capt. S. Cockerell, A.F.C.	Douglas Vickers, M.P., J.P.	Vickers "Vulcan"	350 h.p. Rolls-Royce "Eagle VIII"	10-14-41	18-07-44	9-35-41	17-6-52	89
—	G-EAPR	Capt. F. C. Broome	A. V. Roe	Avro "Viper"	200 h.p. Wolseley "Viper"	10-16-52	Stopped	at	Daventry	—
—	G-EAVP	R. A. de H. Haig	Sir Henry White Smith, K.B.E.	Bristol Monoplane	100 h.p. Bristol "Lucifer"	10-23-11	Stopped	at	Aylesbury	—
2	G-EBDK	F. P. Raynham	F. P. Raynham	Martinsyde F.6	200 h.p. Wolseley "Viper"	10-24-12	17-22-00	9-00-00	15-46-06	105
—	G-EBEV	Cyril Frank Uwins	Sir G. Stanley White, Bart.	Bristol 10-seater	400 h.p. Bristol "Jupiter"	10-27-12	Stopped	at	Northolt	—
6	G-EBAX	F/O. Leslie Hamilton, D.F.C.	Lady Anne Savile	D.H.9C	230 h.p. Siddeley "Puma"	10-32-1	17-51-20	9-37-35	16-48-52	96
3	G-EAAC	A. J. Cobham	Capt. G. de Havilland	D.H.9B	230 h.p. Siddeley "Puma"	10-35-43	17-25-23	9-16-03	15-55-40	108
10	G-EBEP	Capt. A. F. Muir	The Duke of Sutherland	D.H.9	230 h.p. Siddeley "Puma"	10-40-10	18-55-35	10-50-27	17-46-40	88.5
5	G-EBDO	A. S. Butler	A. S. Butler	D.H.37	275 h.p. Rolls-Royce "Falcon"	10-41-2	18-05-03	10-00-50	16-27-05	103
4	G-EBEN	M. Maurice Piercey	Lt.-Col. M. O. Darby, O.B.E.	D.H.9	230 h.p. Siddeley "Puma"	10-41-44	17-47-24	9-44-05	16-23-10	106
—	G-EBCG	H. H. Perry	Lt.-Col. John Barrett-Lennard, C.B.E.	D.H.9A	350 h.p. Rolls-Royce "Eagle VIII"	10-46-5	Stopped	at	Northolt	—
—	G-EBDU	Capt. Cyril Turner, A.F.C.	Major J. C. Savage	S.E.5A	200 h.p. Wolseley "Viper"	10-56-56	Uttoxeter	Stopped	at	Uttoxeter
1	G-EAMU	F. L. Barnard	Sir Samuel Instone	D.H.4A	350 h.p. Rolls-Royce "Eagle VIII"	10-57-40	17-19-53	9-33-14	15-43-51	123
—	G-EBEU	F. T. Courtney	J. D. Siddeley, C.B.E.	"Siskin"	325 h.p. "Jaguar"	11-21-10	17-43-00	10-21-20	Stopped at	Manchester

NOTE: To get flying times deduct 3 hours for "control" stops between Croydon and Glasgow and between Glasgow and Croydon.

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Brief Specification:
"Viking" Mark IV.
6 Passengers and Baggage, or 1,360 lbs. Freight.
RANGE: 340 miles. SPAN: 50 ft. HEIGHT: 15 ft. 1 in. LENGTH: 35 ft.

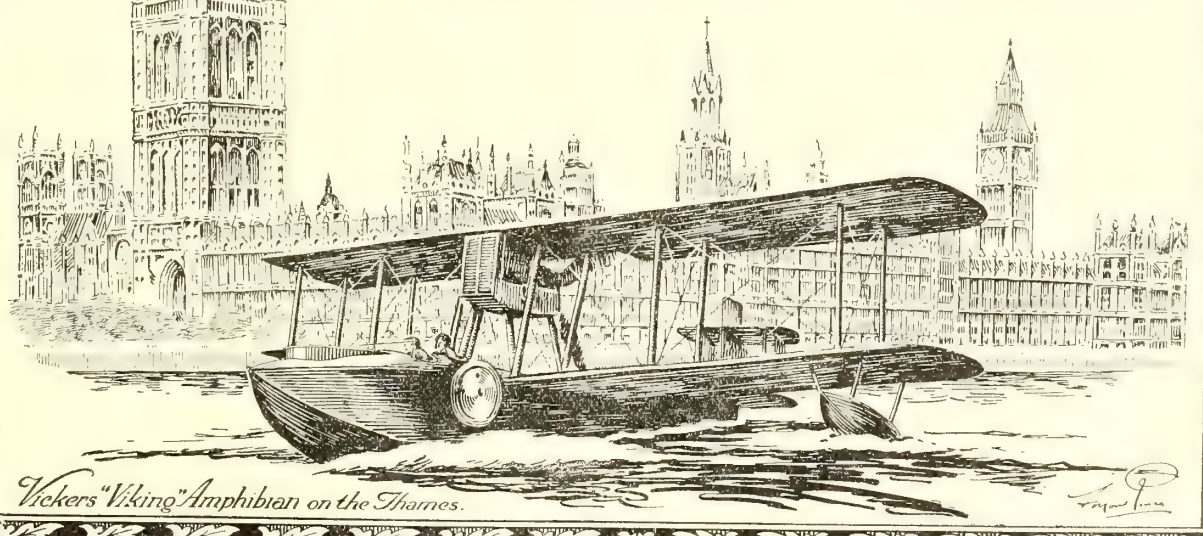
The Vickers "Viking" was the winner of the FIRST prize of £10,000 for the Amphibian Class of Aircraft entered for the BRITISH AIR MINISTRY COMPETITION, September, 1920.

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bit that a driver gained at the start by letting in his clutch before the starting signal was given.

Mr. Barnard's Mistake.

Obviously Mr. Barnard had no intention of beating the flag, for if he had had such intention he would not have started when the flag went up, he would have counted ten and have tried to get away just as it was in the act of falling instead of waiting until it had touched the ground as everybody else did. In a close race with machines doing well over two miles a minute a couple of seconds gained in this way may mean the difference between winning by a hundred yards or losing the race, so it is most important not to lose a second anywhere. But Mr. Barnard did not try to save seconds. He simply misunderstood the signal, whereas the other competitors did not.

Still a rule is a rule and if competitors do not adhere to rules, there is an end to all regulation of sport. And competitors who break rules must be disqualified, whether they break them intentionally or merely through ignorance.

Reduce the thing to an absurdity and you see that it must be so. If Mr. Barnard is allowed to go 10 seconds in front of time and have the time adjusted at the first control why have any starting signal at all? Why not let each competitor start when he thinks he will and adjust the time at the finish? If ten seconds, why not fifteen seconds, or a minute or ten minutes?

How many competitors in aeroplane and motor races who have been kept waiting for the starting signal and have choked their engines and been left on the mark wish that they could have gone off at the time when they had just got their engines running nicely.

The Value of Seconds.

"Oh! But," someone said, "this race was run in stages and the time adjustments could be made at the various controls." Could they, begad? Suppose Mr. Barnard had done the same thing at the last control at Bristol and had beaten Mr. Raynham or somebody else at the finish by 500 yards, which would have looked quite a lot though it would only have taken 8 or 9 seconds. He would have been hailed as the victor and photographed and presented with the Cup and all the rest of it. And then hours later the Royal Aero Club would have learned that he started 10 seconds too soon and that in fact after making the necessary time adjustments Mr. Raynham or the somebody else had really beaten him by 2 seconds or thereabouts. A nice lot of fools the Committee of the Royal Aero Club would have looked.

A Straight Question.

Are we then to understand that in future races of this kind the competitors are to be allowed to beat the flag wherever and whenever they jolly well please *except when leaving the last control*? Will the Race Committee and the General Committee of the Royal Aero Club please give a definite ruling on this point before they hold any more meetings?

Also, if the ruling be that competitors may in future start when they jolly well please before the flag falls, will the Committees kindly make a rule that cuts equally the other way, so that if a competitor does not want to start when the flag falls he can start later? Suppose for example that a rainstorm is coming on, why should a competitor be compelled to go off in the middle of it? Or suppose he wants a drink or a cigarette, or forget to kiss his wife and family good-bye, why should he lose time by doing his duty just because a tyrannical starter chooses to drop a flag? If a competitor can start as much in front of the flag as he thinks he will, then logically he ought to be allowed to start as much after the flag as he thinks he will.

If the Royal Aero Club Committee is going to introduce Bolshevism into sport then let them go the whole hog and do it properly. In fact let us knock out all this silly trouble and expense of flying for the King's Cup next year and let us have a gun-fight in the middle of the aerodrome between the various entrants supported by their respective pilots. It would certainly draw a bigger gate than came to see either the start or the finish this year. And as Sir Samuel Instone has got the first King"s Cup for his very own he will happily be under no obligation to defend his title to it.

Who is to Blame?

Seriously though, it is up to the Committee of the Royal Aero Club to state definitely in print who gave the decision that Mr. Barnard was not to be disqualified. Was a meeting of the Race Committee or of the Stewards of the Meeting held at Croydon after the start to decide the point, or was it merely decided off-hand by the Chairman or the Secretary or somebody, without full consideration?

Let it be remembered that this race was the most serious event ever held by the Club. It was a race for the King's Cup, not for an advertising cup given by a petrol company or an oil company or a chocolate company or something of that sort.

His Majesty has been graciously pleased to set his seal on air racing as a sport fit for gentlemen. If it is to remain so it must be run as such and competitors must abide by the rigours of the game as in other sports in which gentlemen engage. Trade and personal considerations must be cut out. Rules must be rules.

The Committee of the Royal Aero Club has not distinguished itself in the past by its manner of running competitions and it certainly cannot be congratulated on this affair. As one pioneer aviator and experienced sportsman remarked after the start, "There is too much of the Cheerioh business about the sport of flying," meaning of course that there is too much tendency to let things slide and hope for the best instead of making rules and sticking to them. It is more than time for the Club to pull itself together and do things as they are done in other recognised sports.

If the King consents to overlook this affair and is pleased to present a Challenge Cup for future competitions it is to be hoped that this will be a lesson to the Committee. We all learn by our own mistakes. Let there be no mistake next time.

The Last Away.

The last starter was Mr. Frank Courtney on Mr. Siddeley's "Siskin" with a "Jaguar" engine. A tiny cockpit had been made in front of the pilot in the place where guns and cartridge belt would normally go, and into this a gallant mechanic insinuated himself. The machine looked fast and it went off like a rocket. Its subsequent times were quite remarkable and it was a pity it did not come through.

The only absentees were the Supermarine, which could not get back to England from Naples in time, and unlucky Mr. Hinkler, whose Green engine let him down into Southampton Water the day before the start.



BEFORE THE START.—The Instone Air Line party: Left to right, Major Greer, General Manager; Sir Sam Instone, Chairman; Mr. Green and Mr. Roper, Engineers; and Mr. Barnard, the Pilot who Won. Inset is the prophetic inscription on the side of the de Havilland 4a, Rolls-Royce engine, which not only won the handicap but did fastest time.

AIR RACE ROUND BRITAIN

for

THE KING'S CUP

won by Mr. F. L. BARNARD on a

DE HAVILLAND 4a

fitted with a

ROLLS-ROYCE EAGLE 8 ENGINE

21 Aeroplanes started - - - **7** were De Havilland

11 Aeroplanes completed the course - **6** were De Havilland

Of the FIRST 6 MACHINES HOME 5 WERE DE HAVILLAND

1st - De H4a with 350 h.p. Eagle 8 Rolls-Royce Engine.

3rd - De H9b „ 230 h.p. Puma Engine.

N.B. These two machines were converted war machines which have been continuously in commercial work since 1919.

4th - De H9 „ 230 h.p. Puma Engine.

5th - De H37 „ 275 h.p. Rolls-Royce Falcon Engine.

6th - De H9c „ 230 h.p. Puma Engine (Standard De H. Taxi machine).

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After that everybody trooped off to their various vocations. At intervals people congregated in the Royal Aero Club to discuss progress. There they were assailed at intervals by some species of bellowphone installed in the hall where it squawked out partially intelligible messages which were, I was told, being "broadcasted" by wireless from Marconi House. It was a singularly nasty noise, and the evening papers gave the news very nearly as quickly besides being quieter about it. After it I do not think I shall buy a broadcast receiving set.

An Interim Report.

During the day we learned that the Bristol ten-seater was down at Northolt with more petrol trouble: whether the petrol itself or the Air Ministry petrol system or mere plug trouble it was impossible to discover. Then we heard that the Bristol monoplane was down at Aylesbury with an errant valve-rocker pin.

Everybody was very sorry for the Bristol people, for their big machine was the only novelty in the race. Besides which people have a kind of personal affection for the little monoplane, which is the identical first machine built to Mr. Barnwell's design for the Bristol fighting monoplane in 1915, N-type which pilots loved and one which would have done great work in the war but that it was turned down by some smart Aleck in the Department of Military Aviation who did not know what pilots wanted.

Later news came in that the two "Kangaroos" had stopped at Newcastle as it was too late for them to go on over the mountains to Glasgow: also that Mr. Perry had stopped at Northolt: and that Capt. Broome was down at Daventry: and that Major Carr was down at Halifax: and that Mr. Turner had stopped at Uttoxeter. So thus ended the first day, leaving thirteen machines for the second stage, out of twenty-one starters—a bad record.

At the Finish.

The crowd at the finish was mostly outside the aerodrome. Still there were enough inside to pay for the hire of tents and fencing, so it is to be hoped that the Club will not lose money over the business. While waiting there was an impromptu race between two of the Disposal Company's S.Es, flown by Messrs. Stocken and Hayns, a "Tinsyde," belonging to the same firm, flown by Mr. Perry, and a "Jaguar"-engined Mars VI., built by the Gloucestershire Company, and flown by Mr. Schofield. After which one of the S.Es, flown by Mr. Hayns, and the "Tinsyde," flown by Mr. Stocken, did some of the prettiest acrobatic flying that has been seen at Croydon.

Just before 16.00 hours a Handley Page W.8b came in from Paris, the pilot Major Foot successfully giving the impression that he was winning the King's Cup. But before he landed Mr. Barnard arrived, putting in a most effective finish round the official tent.

As he was still circling for his landing Mr. Raynham came in, less than three minutes behind, and being quicker in landing the two machines actually taxied up to the enclosure together. The usual rush for the winner ensued, and Mr. Raynham with his usual modesty just stood in the crowd as a spectator.

The Winner and His Mount.

Mr. Barnard certainly flew a fine race, especially in view of the fact that it is only a few weeks since he was in hospital with an assortment of broken bones as the result of an argument between his motor-cycle and a lorry. He must have kept almost a perfect course.

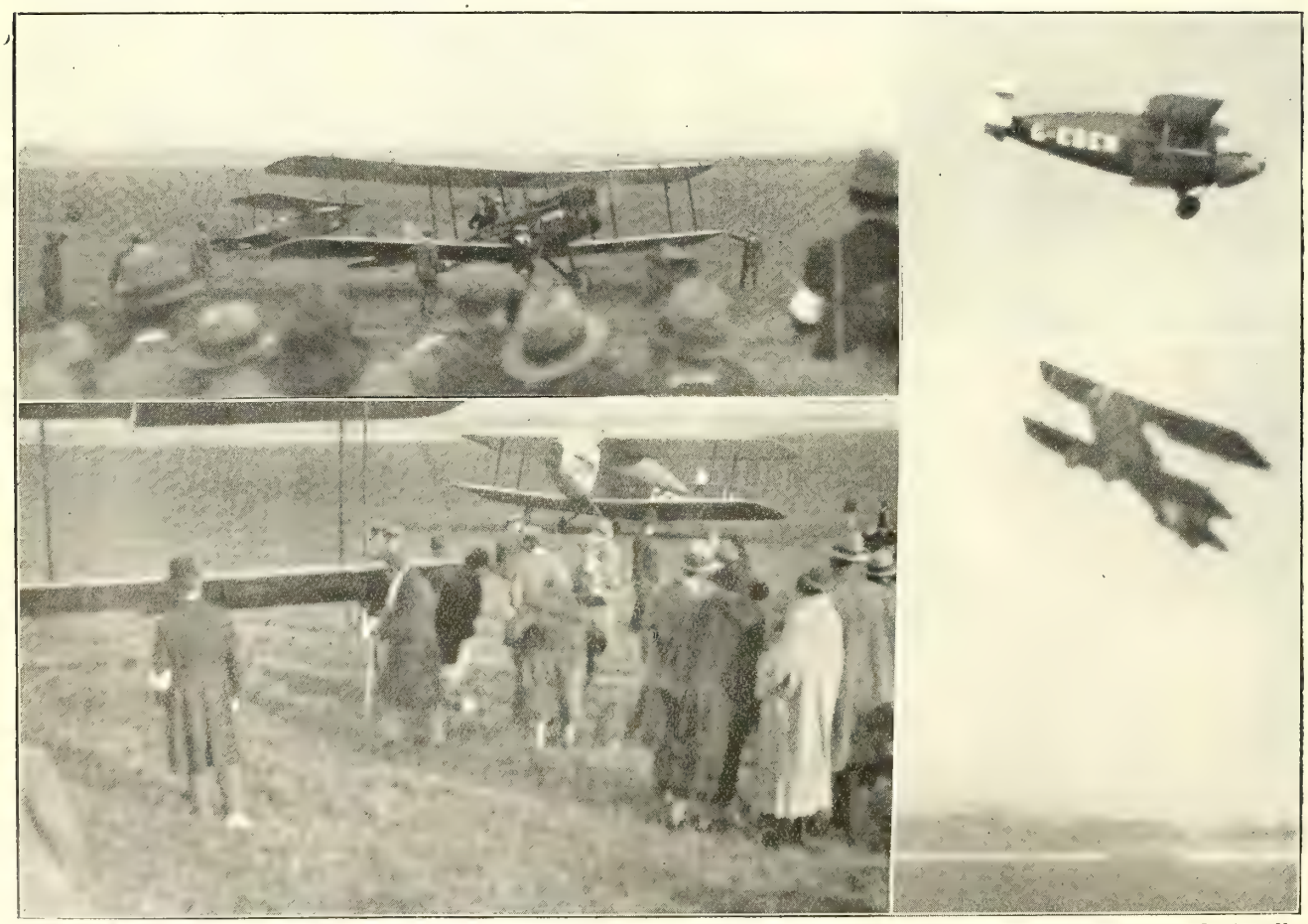
His "Eagle" Rolls-Royce was purring just as cheerfully at the finish as at the start, although his speed shows that it must have been pretty well all out the whole time. It is a pleasure to be able to congratulate the Rolls-Royce Company on winning the big race. The reputation won by their engines in the big flights across the Atlantic and to Australia is thus worthily maintained.

And of course the aged D.H.4a gave no trouble. If there had been any trouble coming she would have shown it years ago.

A Moral Victory.

Mr. Raynham's was undoubtedly the greatest performance of the day. As already stated he was the owner, engineer, chief mechanic, rigger and everything else of his outfit, though loyally helped by his mechanic, Mr. Camm who accompanied him in the race. The firm which made his engine is no longer interested in aviation. The firm which made his aeroplane is in the hands of a receiver. He had no wealthy man nor subsidised air line to see him through. His was a very gallant one-man show.

Even as it was, with any luck he would have won, without



AT THE FINISH.—Above Mr. Raynham (left) and Mr. Barnard taxying in at the finish. Below Captain Cockerell and Co., coming home. On right the "Vulcan" coming down and below Mr. Raynham departing for home.



"I feel sure you will be interested to hear of my experience with the 450 h.p. Napier Engine installed in the Supermarine Flying Boat, with which I won the Schneider Cup at Naples on August 12th.

"The conditions were all against us. The heat was intense, even for Italy, and I had to get off first, and therefore had no opportunity of nursing the Napier.

"After the machine had undergone its six hours' seaworthiness test, the engine started at first turn, and although I ran it at a very high speed, there was complete absence of vibration, and I experienced no trouble at all.

"During the whole strenuous race the engine never faltered, and afterwards was ticking over as sweetly as ever."

H. C. Biard

Mr. H. C. Biard, whilst flying a Napier Supermarine at Naples, secured for Great Britain the International Flying Boat Trophy.



"I want to write and say how much of my success in winning this strenuous race for the second year in succession with the Gloucestershire Machine was due to the Napier Engine.

"I have now been flying the Napier for some years, and each time I fly it I like it better—it is a perfect engine.

"In this year's Aerial Derby I had the engine running at 2,250 revs. p.m. for the whole course of 200 miles, and she was wonderful. Smoothly and without any vibration, she seemed capable of running for ever at this high speed."

J. H. James

Mr. J. H. James has, on the last two successive years, piloted the Napier Gloucestershire machine to victory in the Aerial Derby.

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any question of Mr. Barnard's disqualification. What lost him the race was his compass.

Coming over the mountains between Glasgow and Manchester he was so bumped about that the compass-card became deranged and spun like a roulette wheel. Consequently he could not trust it. The result was that when leaving Manchester he had to wait for Mr. Cobham and follow him out to clear country where it was possible to steer by the map. And this lost him more than the time by which he was beaten.

Besides the compass trouble his old "Viper" engine cracked a water-pipe which had to be stuck up with sticky tape during the halt at Manchester. He had had the trouble before and had tried to get spares from Birmingham but had failed. And he and his Mr. Camm had plenty of other little jobs to do on the way.

Altogether it was a very fine sporting effort on his part. He bought the machine with money that he earned by sheer hard work as a test pilot. He has been flying for almost 12 years without a lapse of more than a few weeks at a time. He is recognised as one of the world's greatest pilots. And he has never yet had any luck in a big event. Everybody will wish him better luck next time. And incidentally a word of praise is due to the genius of Mr. Handasyde, whose antiquated design again appears in the front rank.

The Champion of Tourism.

The third man in was Mr. Alan Cobham, to whom of course as what the French might call "The champion of Aerial Tourism" a little jaunt like this is merely a holiday. He was only nine minutes behind Mr. Raynham, which shows that he also must have kept a good course, as was expected of him. He was set to give Mr. Raynham 23 minutes' start but the latter's machine was actually faster though it could not apparently keep going as could Mr. Cobham's trusty old "Puma." Which is why the two left Manchester together and why Mr. Raynham got away at the finish.

Incidentally the Siddeley people are to be congratulated on the fact that all four "Puma"-engined machines in the race got through without any trouble in the engines themselves. Such trouble as they had was with plugs and other accessories.

Congratulations to the Handicappers.

The official handicappers, Colonel Bristow and Captain Goodman Crouch, are certainly to be congratulated on having brought about a finish in which the first three men were inside 12 minutes after a journey of over 800 miles. Captain Crouch is certainly a wonder at intricate figures and for once the fates were kind and did not introduce unforeseen factors into his calculations.

It is true that the slow machines were all over the shop on the handicap, but that cannot be helped. It is only possible to handicap on the assumption that there will be no wind, and if there is a strong head wind as there was on Friday the slow machines must suffer.

For example, suppose there are two machines in a race of 400 miles one of which does 80 m.p.h. and the other 40 m.p.h. Then in a calm one will take five hours for the journey and the other ten hours, and they can be handicapped accordingly. But if on the day of the race there is a 40 m.p.h. head wind the 80 m.p.h. machine will take 10 hours over the journey and the other will never get out of the starting aerodrome.

Which argument applied in less or greater degree to the machines on Friday. It accounts for S/Ldr. Payn taking 7 hrs. 45 mins. to do the 394 miles to Glasgow, starting first and arriving last, and also accounts for the "Vulcan" and the "P.9s" being so far behind. If both days had been calm the whole lot would have finished almost in a bunch.

Assorted Comments.

Of the rest of the finishers there is little to relate. Most of them had somewhat uneventful journeys. Mr. Muir suffered from plug trouble. It was reported that the Princess Lowenstein-Wertheim was very ill.

The two other private owners Colonel Tennant and Mr. Butler came through in excellent style and should be an encouragement to other good sportsmen of their much-to-be-desired type.

Mr. Cockerell's "Vulcan" after landing disgorged a population like a Noah's Ark. Apparently he had picked up passengers on the way, among them being Mr. Wallace Barr who was officiating for the Royal Aero Club at Bristol. Mr. "Cy" Holmes paddled in on the P.9 just as quietly and with the same benign smile as when he left.

A Financial Deal.

Mr. Longton had a very adventurous voyage. The little "Gnu" bumped like a cork and the compass was practically useless. Coming back on Saturday the clouds were down on the hills in Cumberland so he went under them and threaded his way along the lakes. Near Manchester an exhaust valve blew into its cylinder so in the 1½-hour compulsory stop there he and his mechanic took off the cylinder to fit a new valve. They then found a gudgeon-pin afloat, so to prevent it from scoring the cylinder wall they had to put something over the end of it and the only thing that would fit was a shilling, borrowed from the mechanic (and a Scot at that). One can imagine his feelings as the cylinder slid back into place and covered the coin. Still he has the consolation of knowing which cylinder it is in. And if he does not get it out it will enhance the value of the machine if Colonel McClean wants to sell it.

Reliability! ! !

So out of 23 entrants 21 started, only thirteen reached Glasgow and of these only 11 returned to Croydon. With about 50 per cent. casualties it does not seem that Civil Aviation can yet claim to rival railway trains or steamboats for reliability. And be it noted the stoppages were about an equal proportion between old and new type machines and engines. Which is one reason for wanting money spent on the R.A.F. and not on air-line subsidies.

Capt. Broome's stop on the Avro "Viper" was due purely to engine trouble. Plugs blew out, the engine vibrated badly and so he just stopped.

Major Carr with the "Lucifer" Avro had no engine trouble. His compass came unshipped and he had to land near Halifax in a moorland field to ask his way. Then he found that he could not get out with full load, and by the time he had flown to a possible field three miles away and got his mechanic and gear there it was too late to go on.

Evidently aero-compasses need improving. Several pilots lost time and put on distance through compass trouble. Surely at this time of day there ought to be reasonably reliable compasses to be had.

Mr. Courtney broke a wiring plate in the centre section of the "Siskin" near Manchester and wisely decided not to risk coming on to Bristol. In these high-speed machines one cannot afford to take chances. S/Ldr. Payn suffered from a dud magneto, which accounted for his not reaching Manchester. But late reports on Saturday said that he intended to fly home.

Mr. Cyril Turner stopped because of dirt in his carburetter, which kept on choking the jet and falling out again. He strained some wires in a forced landing and stopped.

A Limited Success.

Altogether, considering the limitations, that is to say considering that nobody could afford to build proper machines for the race, considering that the weather was nasty, considering that the Royal Aero Club is not the Jockey Club, and so forth and so on, the King's Cup Race may be written down as a thoroughly jolly affair. All the pilots behaved like real good sportsmen, and it was quite surprising how many people were found to enter machines.

Of course as usual the Aircraft Disposals Co., Ltd., were the backbone of the show. Including its own entry, put in by that good sportsman who is now known as Colonel the Aerial Darby, the firm supplied in the first place the machines which were flown by Messrs. Perry, Piercey, and Muir, and I believe Mr. Turner's S.E. was originally a "Disposals'" machine also. It is to be hoped that by next year if the race be repeated things will have improved so much that there will be very many more entries by well-to-do sportsmen and that there will be several more "owner-drivers."

There was no fault to find with the general organisation of the race, and I hear that the organisation at the controls was excellent. Also it seems that there were thousands of people at the controls at Birmingham, Newcastle, Glasgow, Manchester and Bristol for every one at Croydon. Apparently the jaded Londoner only takes an interest in flying if he is going to take part in it himself as when joy-riding, or if it is a social function such as the R.A.F. Pageant.

The social side of the King's Cup race was not sufficiently emphasised, and anyhow everybody is out of town now, so there was no chance of a proper gate. Next year, if it be repeated, the race should take place during the Season, and not during the deadest of the dead period when even the lower middle classes are away on holidays. Probably the Committee of the Royal Aero Club will acquire wisdom with age.—C. G. G.

[NOTE.—Owing to the prime importance of the King's Cup Race it has been necessary to suspend for this week the publication of the "Aeronautical Engineering" Supplement to "The Aeroplane." Doubtless when the £1,000 Gliding Competition takes place Captain Sayers will retaliate.—C. G. G.]

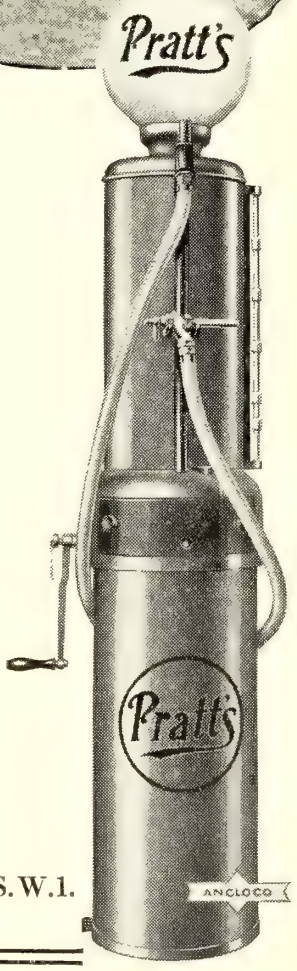


Photo by J. T. Roberts, Croydon.

S.E.5. filling up with Pratt's filtered Aviation Spirit at Waddon Aerodrome where three of Anglo's Golden Pumps (Approved by the Standards Dept. of the Board of Trade) are installed for the rapid supply of Pratt's Aviation Spirit without waste.

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A KING'S CUP LOG.

By CHRISTOPHER CLARKSON (The Envoy Special of THE AEROPLANE on the Vickers "Vulcan.")

FRIDAY, SEPT. 8TH, 1922.

10.14.41.—Took off from Croydon. Wind, N.E. Kept an even height at about 500 ft. Not having a watch, and there being no instruments in the cabin, one has to rely on church clocks, and such. Crossed the Thames at 11.20. Most infernally bumpy. Left Staines Reservoir on the left, then turned and crossed it.

Came down low over a town and discovered it was Maidenhead. Viper Avro up on our right—it looks like Broome, but could not see the identification numbers. The bumps over High Wycombe were bad, but got less further on.

At Banbury the clouds had more or less cleared and visibility was better. A goodish fire was burning just outside the town, near a railway siding; whether cakes or refuse one could not see.

BIRMINGHAM.—Arrived 11.35. Considerable crowds had collected at the Aerodrome, and the Mayor and Mayoress proceeded to greet each arrival.

At the time of writing Perry, Broome, Haig and Uwins have not arrived, but everyone else is safely in. Courtney, on the Siskin, crossed the line at some considerable speed, and looks like winning if his engine does not let him down.

The Aerodrome is stiff with Aero Club officials, and ex-members of the R.A.F. Raynham is busy dealing with the cowling of his Tinside—armed with a blow-lamp

Payn has had some trouble with the "Baby" Avro, and at the time of writing is still on the ground It is rumoured that both Perry and Uwins are down at Northolt.

1.4 p.m.—Took off from Castle Bromwich. The country is much flatter now, and abounds in rivers. Our height is about 1,800 ft., and consequently there are less bumps—for which one is devoutly thankful!

Sighted a machine just ahead, but as the visibility was poor one could not see who it was. Think this must have been Butler.

Later.—The country has become very hilly but not having a map one does not know quite where one is, but it must be out Derby way. Passed a formation of seagulls flying backwards!

Moors, heather, pine trees and such. One does not like the look of the country as regards a forced landing—miles from anywhere and of uncertain contour.

Passed over 3 large reservoirs, set close together: country resumes its green colour.

Some machine is coming up behind us—it looks D.H.9-ish.

BRADFORD (at least I think so).—The D.H. has caught us, but is too far to see who it is . . . it looks like the Duchess or Countess or whoever she is. The air even up here at 1,000 ft., smells of smoke and sulphur, and one agrees most whole-heartedly with Mr. Belloc!

SHEFFIELD.—What a disgusting town! Everything is black. A fair is in full swing in the middle of it: sighted another machine—also—I think—a D.H.9.

LATER.—The weather begins to look rather bad ahead.

Rain. Visibility rotten. Caught up a Bolton and Paul P.9.

RIPON.—Weather seems finer further on. Following railway to Newcastle with the P.9 hard on our heels.

NEWCASTLE, 3.1.7.—Lots of railways and masses of people. Cheers!

Large aerodrome with lots of people. Raynham was first in, Cobham 2nd and Courtney 3rd.

Arrivals.—Both P.9s, Butler, Longton, Vickers, Piercey, Courtney, Hamilton, Barnard, Perry, Raynham, 2 Kangaroos, Muir.

As we left Newcastle at 4.48 Payn came in on the "Baby" Avro. He had had trouble at Birmingham. Turner, on the S.E., was reported down in a cornfield, Muir had carburetter trouble at Chesterfield, and was delayed.

From Newcastle our course lay across the hills—the highest of these was about 2,400—and the clouds were, in places, about 2,000. When the sun came out—which it did occasionally—(for a dud climate commend me to Newcastle) the view was very fine—heather and hills and valleys and sheep, and more heather, and wilder hills.

Crossed large junction: first town since Newcastle.

It is curious, but it is not nearly so bumpy over these young mountains as it was between Croydon and Birmingham.

A golf course! Civilisation is nigh, thank goodness!

Butler, travelling fast, has just passed under us. The hills have given place to the lowlands and we should be there soon now.

The whole district is stiff with coal mines—and disfiguring heaps of slag.

Glasgow in sight (thank goodness! Oh for a wash and food!). Everyone seems to be in the street—such as one can see through the smoke— it's a worse place than Sheffield. The docks look busy; but, oh! the bumps!

GLASGOW.—Arrived 6.7 p.m. Were met by "Boom," completely courteous as ever.*

Barnard got in first, and is now the favourite, Raynham was second. The "Kangaroos" have not arrived and are rumoured to have gone back to Newcastle. Muir arrived, complaining strongly of bumps of enormous proportions.

Three "Night-hawks" were on the aerodrome, and had been giving a display of formation flying. They were from Leuchars and were flown by Slater, Metcalfe and Jones.

The "Baby" Avro arrived long after everyone, gamely carrying on against a sea of engine troubles.

Found a fond mamma had seated little Jock on the trailing edge of the "Vulcan" and was preparing to feed him—from a string bag—on haggis or porridge or oatmeal or shrimps or something.

The night was spent in Glasgow with Messrs. Cockerell, Muir, Piercey, Grant, and a late R.A.F. officer, whose name one did not catch, but who was extremely hospitable, and who acted as interpreter. Even Muir and Grant needed his help with the local dialect at times.

SATURDAY, SEPT. 9TH, 1922.

Saturday morning dawned beautifully fine, thank goodness, and we took off at 9.35 for Manchester.

9.35.—Took off. Visibility none too good on account of haze, which should clear off soon. Apparently, judging from what one hears, Butler's course keeping is none too good—for he should be well ahead as regards his speed. He went off to Hull, or Hartlepool or somewhere, and flew up the coast to Newcastle. He is always passing machines at odd intervals. Sometimes across and sometimes along their course. Piercey seems to have seen him shoot several times across his line. From this it would seem that his speed is somewhere about 137 m.p.h. for he went by us at a good 15 m.p.h. and we were doing 105 between Newcastle and Renfrew.

LATER.—Visibility now good. Passed over Dumfries and can see the Solway Firth.

SOLWAY FIRTH.—The tide is right out and the mud looks very uninviting and there are some bad bumps——

That's that!—dry land once more, and some horrible looking clouds over the Lake District.

Derwentwater, I think. Low clouds over the imitation mountains; looks like rain. Bumpy.

Cannot get through across Allan Water, so we are going round towards the sea. The hills are about 2,500.

Went round within about 3 miles of the coast. I do not quite know where we are, but I think Lancaster is away on our right front—in which case we are more or less on the right course. The wind, which is N.E., seems fairly strong.

Blackburn ahead. This flat country chucks up some fine bumps!

Have seen no one else this trip, so far, and am wondering how they came over the Lake District. Personally I think it would have been quicker to climb through the clouds and come over the top—as they were fairly broken.

Manchester in sight. Sing-ho for a bottle of Bass! (But weather farther on looks dud!)

Can't see anything for smoke!

MANCHESTER.— Arrived 12.50. A considerable number of people at the aerodrome, and five Bristols and two Avros had come over from Chester to see the fun, and one met numerous people one knew.—The Berkshire Aviation Co. also had an Avro on the floor.

Apparently everyone else had come over or through the hills in the Lake District, and the journey on an average was about 90 minutes.

All machines had got through and Cobham came in first, with Raynham and Barnard as 2nd and 3rd.

Took off from Alexandra Park at 1.13. (Courtney had to retire at Manchester owing to a broken centre section fitting.)

Passed over a perfectly chocolate-coloured river (Newcastle-under-Lyme?) Also many coal mines, with their attendant disfigurements.

The country is now very wooded and hilly and there does not appear to be a landing ground for miles! Wyre Forest.

Open country again now. A clock on a tower says 2 p.m.

THE SEVERN (thank goodness!) As it has been infernally bumpy. The bridge shows up well. The tide is running out.

BRISTOL.—Arrived 2.27 p.m. There was a considerable crowd here. Uwins on a Bristol Fighter and Carter on a Bristol monoplane were stunting around. Carter was stunting over the heads of the crowd, which seemed to annoy several people: but his flying was as pretty to watch as ever.

The weather was quite good—cloudy but fine.

[* The affectionately disrespectful reference here is to Air Chief Marshal Sir Hugh Trenchard, Chief of the Air Staff, who forsook the moors for the aerodrome on purpose to greet the competitors.—C. G. G.

Consistency & Reliability In the King's Cup Race.

TWO Boulton & Paul low horse-powered machines were entered. Both completed the course, averaging the speed declared by the makers, the second machine finished 6 minutes behind the first in a trip of 800 miles.

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Raynham got here first, Barnard second, Cobham third. Raynham was rumoured to be suffering from a vibrating prop so it seems that Barnard will win.

Left Bristol, 3.57.—Came most of the way about 500 feet, and thoroughly put the breeze up a heron who was out on a cross-country!

As far as one can judge the handicapping was—in some cases, at fault—for instance the P.9s and ourselves; but, taking into consideration that this is the first race of its kind it's a very great success Much enthusiasm was shown at every stopping-place and the local Press was always very full of it.

Chippenham, 4.20.—(We are carrying home Aero Club and Petrol representatives so one knows the time!)

4.25.—Yatesbury Aerodrome. Very desolate.

4.30.—Marlboro' and so via Weybridge to Croydon.

For pilot, machine, and engine one has nothing but praise. And for the Royal Aero Club also, as everywhere, the arrangements were excellent.

The enthusiasm along the route was considerable, and it seemed that more people turned up at the stopping places than at Croydon.

Lastly one would like to thank everyone with whom one came in contact, and especially Capt. Cockerell and Serjt. Wyatt, for a thoroughly enjoyable trip, and for their considerable kindnesses and for the hospitality everywhere shown.

Our flying times were as follows :—

	Took off.	Landed.	Time.
Croydon—Birmingham	10.14	11.35	1.21
Birmingham—Newcastle	1.5	3.17	2.12
Newcastle—Renfrew	4.47	6.7	1.20
Renfrew—Manchester	9.35	11.50	2.15
Manchester—Bristol	1.13	2.27	1.14
Bristol—Croydon	3.57	5.10	1.13

We were the only really commercial machine in the race and we had no trouble of any kind. We were off the mark to the second every time. To push an animated " Blimp " like that round the course is pretty good.

NOTES FROM THE COURSE.

Preliminaries at Croydon.

Of the machines which took part in the race, five were normally resident at Croydon. Of these, Mr. Barnard's D.H.4 and Mr. Muir's D.H.9, had been overhauled by a London firm and were erected last week at the aerodrome. The D.H.9 which Mr. Piercey flew and Mr. Perry's 9a were erected by the Disposal Company and their pilots had been testing them round about the country for the past fortnight. Mr. Cyril Holmes' P.9, which is really Mr. Courtney's, had had its engine overhauled and he flew the machine first on Wednesday.

Of the non-resident machines the first to arrive was Col. Tennant's P.9, which came in the previous Saturday. On Tuesday, Mr. Courtney arrived from Coventry on the Siddeley " Siskin," making the trip in 42 minutes, and later on the same day Mr. Kenworthy and Col. Spenser Grey came in on the " Kangaroos," and Mr. Haig arrived on the little Bristol monoplane.

On Wednesday Mr. Carr came up from Southampton on the Avro " Lucifer."

On Thursday Mr. Longton came over from Northolt on the Sopwith " Gnu " accompanied by an R.A.F. Avro on which machine he afterwards returned to Northolt. S/Ldr. Payn came up from Southampton in his " Baby " Avro, the old original two-seater which was brought out a few years ago. It was learnt with great disappointment that Mr. Hinkler had landed in the sea off Hamble when taking off the aerodrome and the machine would not be dry enough in time to compete. His machine was said to have some 5 feet less span than that of S/Ldr. Payn so she should have been pretty fast.

Messrs. Cockerell and Broome on the "Vulcan" and the Avro "Viper" respectively came over from Brooklands followed shortly afterwards by Mr. Raynham on the mustard-coloured " Tinsyde." Mr. Cyril Turner arrived from Hendon on his snow-white sky-writing S.E.5a.

The last arrivals of the day were Mr. Alan Cobham on D.H.9 G-EAAC in formation with Capt. Geoffrey de Havilland who was flying Mr. Butler's D.H.37 and F/O. Leslie Hamilton accompanied by the Princess Lowenstein-Wertheim as passenger on D.H.9c G-EBAX. Mr. Dickinson also came in simultaneously on a D.H.9 to take Mr. Cobham and Capt. de Havilland back to Stag Lane.

This left only the Bristol 10-seater not accounted for the following morning at the starting line. But at 09.15 hours she came out of the mist from the West and landed, starting off to schedule.

On Wednesday afternoon Mr. Cyril Holmes took up the P.9 for his first test flights and made some very pretty landings. Col. Tennant was doing likewise with his. In the race the latter carried a passenger, Mr. Young of K.L.M., who served with him in the R.A.F. Mr. Muir had the Duke of Sutherland's machine out for a short test flight and late in the evening Mr. Courtney took up the "Siskin" with oneself as passenger.

Flying in the "Siskin" is not quite like any other passenger machine in existence. The climb is terrific and the machine gets to 2,000 feet in little over half a minute. The Siddeley " Jaguar " engine is, with the possible exception of the Napier, the smoothest running engine behind which one has ever sat, and the speed of the machine is quite astonishing. The last time one flew as a passenger with Mr. Courtney was at Farnborough in 1915 when he endeavoured to initiate one into the mysteries of flying Maurice Farmans. Although the top speed of the "Siskin" is round about 150, the landing speed is reminiscent of the said Maurice Farman.

On Thursday, Mr. Shaw was apparently holding a compass swinging class, or at any rate he appeared to be swinging compasses for " kindred spirits." At one time round the compass-swinging base there were about nine machines all waiting for Mr. Shaw to minister unto them. There was one aircraft whose compass Mr. Shaw had not swung which insisted on pointing due S.E. in whichever position the machine happened to be. For some time all the experts were completely baffled and Mr. Shaw had to be called in. Without climbing into the seat he was able to point out that a possible remedy would be to remove the compass farther away from the self-starter magneto, which was within six inches of it.

On Wednesday of last week, Capt. Alfred Instone informed one that Sir Samuel had not yet arranged the exact place in his house where he intended to put the Cup. In spite of this prophecy, Capt. Instone says that the reason the words " King's Cup Machine " were painted on the side of the fuselage was in order to let people who were unfamiliar with modern commercial machines know that this was a special machine and not a regular Instone Air Liner.

It was a very fitting ending to the King's Cup Race that the first really big event to take place at Croydon should be won by Croydon's oldest machine. This is the only aeroplane now running which came over to Croydon when the terminal aerodrome was first formed and is still running. Moreover, Mr. Barnard is, one believes, the only pilot who has been employed continuously at the aerodrome since its inception. There are several others, such as Mr. Powell, Mr. Chattaway, Mr. Robins and Mr. Game, who also came over from Hounslow at the beginning, but they have had intervals when they have not been employed at the aerodrome and Mr. Game and Mr. Chattaway no longer fly. Furthermore, Messrs. Green and Roper, who were Mr. Barnard's passengers, have also been at the aerodrome from the beginning, Mr. Green having been one of the four original Instone mechanics and Mr. Roper was an old A. T. and T. man. At the end of the race Mr. Barnard looked exceedingly done up, in fact, rather like what Miss Marie Lloyd would call " one of the ruins that Cromwell knocked abaht a bit."

Mr. Barnard's D.H.4a was originally called the " City of Cardiff " and was last year changed to the " City of York." One suggests that for future races it should be called " City of —— " filling in the name of the destination city at the beginning of each stage. This at any rate would ensure a popular reception on arrival at the respective cities.

At all events why not now alter the name, promoting the machine from a mere city, as the result of its achievements, and call it the " Kingdom of Great Britain."

In future races one hopes to see more of the Croydon and Stag Lane commercial pilots in the race. And if any sportsmen wish to put up machines for future races one can introduce them to a number of pilots who can be guaranteed to get almost any kind of machine through almost any kind of weather over almost any kind of country.

Mr. Courtney's take-off from Croydon rather suggested that he was running his engine on a spirit in which a teaspoonful of a well-known salts had been mixed, for it certainly displayed " that Kruschen feeling " in its climb.

Col. Tennant told one before the race that he did so hope he would not come in last. Although he was last of the official finishers, this was better than not finishing at all and both he and Mr. Cyril Holmes performed marvellous feats in doing what they did. One suggests to Col. Tennant that if he is considering writing another book (and of course the family failing is writing books) " Round Britain on a 90 R.A.F.," would make a thrilling title.—G. D.

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Newcastle.

At 4.30 p.m. a plaintive voice asked me again if I was sure that the hump-backed Instonian D.H. wasn't really a roast chestnut machine in disguise. It wasn't, unfortunately—but that describes the weather. The only chestnuts present were some relics of bygone years mong the competing machines, too metallic to eat.

Unfortunately, the Press, through scheduling the arrival of the machines as between 12 and 3 o'clock, upset many Tyneside livers. The Press were correct, or nearly so, but the wait proved too much for a large section of the crowd and from 1 till 2 the arriving and departing crowds made it difficult to see just where the aerodrome lay.

The temporary wireless station, in an excess of enthusiasm, broadcasted itself to a state of exhaustion and broke down, one understands, three times, leaving rather too much to the imagination and making the ascertaining of departure times from Birmingham unascertainable.

The sensation of the day was the arrival of the "Tinsyde" and Mr. Cobham's D.H.9 on its heels, both very much at speed with a crowd-impressing hum from the Rafwires. Thereafter machines arrived somewhat uneventfully. The Siddeley "Siskin" appeared very high up, and glided in, having run out of petrol over the city. One understands also that Lt.-Col. Tennant's P.9 had to land just south of Newcastle for the same reason, but the latter still arrived in excellent time considering.

G-EAMJ, the Blackburn "Kangaroo," appeared somewhat from the East and it appears had visited Jarrow some eight miles down the Tyne *en route*. At times the visibility was so poor that the slight deviation of some of the machines can be clearly understood. Beyond the "Kangaroo" visiting Jarrow, one heard of no other cases of lost direction, though the D.H.9 piloted by Capt. Muir arrived unaccountably late. As Capt. Muir did not seem very loquacious on the subject the reason does not appear.

Anent the only lady competitor, the lay press have and will say more than my unfertile brain can hope to invent—may the next race see a lady pilot.

The St. John's Ambulance men shot their cuffs at intervals and concocted schemes for labelling the portions of the adventurous pictorial pressmen after decease, and the horse of our mounted policeman provided the band music, either that or it was laughing solidly all the afternoon.

The Town Moor cows, which be it remembered won their last round with, if one remembers, a Kenley Flight and incidentally provided the R.A.F. with its own cow story, were resting on their laurels.

The Avro "Baby" arrived tired but cheerful and parked itself next to a "Kangaroo." One facetious gentleman was heard to ask if it was a spare part the "Kangaroo" had dropped. But it won the due reward of a staunch little 'bus from the crowd, then at least 15,000 strong if reports speak true.

The late Leatherhead D.H.6 was in attendance passenger carrying, piloted by Victor Yates. Of late it has been doing much to show the reliability of the aeroplane by visits to many spots in Northumberland as the Northern Aerial Transport Co., and one has personally run across it in several northern outposts of Civil Aviation.

The only other fact to report is that the crank-case breathers on the 90 h.p. R.A.F. engine of one of the Boulton and Paul P.9s lived up to their old R.F.C. name of "Pilot-oilers." They oiled everything in sight liberally, must have been gushing like a Hyde Park orator ever since leaving Birmingham one opines.

The departures were uneventful.

In short, aviation progress and reliability go hand in hand. The more they progress in the hands of good pilots and good ground organisation, the less meat it leaves for the amateur reporter. Let the bareness of this brief note tell its own tale.—H. L. Swinburne.

Renfrew.

Renfrew, Sept. 8th.

All roads leading to Renfrew Aerodrome to-day between four and five o'clock in the afternoon were crowded with vehicles and pedestrians. In fact it was the nearest thing to a Derby day crowd Glasgow has ever produced. Heavy rain fell between 3.30 and 4 o'clock when it was announced the first machine was expected to cross the line.

The arrangements on the aerodrome were in the capable hands of Mr. J. Allison. Col. Bristow and Major Noyes represented the Royal Aero Club and Mr. Rennie was official timekeeper.

In the special enclosure were seen Lord Provost Paxton and Mrs. Paxton, Lord and Lady Blythswood, Lord and Lady Weir, Air Chief Marshal Sir Hugh Trenchard and Lady Trenchard, Sir Thomas Lipton, Sir John Lindsay, Sir Frederick Lobnitz, Sir John Samuel, Brig.-Gen. Weir, and several other notabilities. A flight of six aeroplanes from Leuchars put up a very creditable performance to entertain the waiting crowd.

By 4.30 every point of vantage on and around the aerodrome was occupied by eager spectators. Shortly before five the weather cleared and at 5.15 the first machine was seen as a speck in the distance over Glasgow. As it crossed the line on the aerodrome the big white letters G-EAMU painted on the fuselage were easily recognised. The pilot—Barnard—landed his D.H.4a in splendid style and taxied towards the hangars.

The machine was immediately surrounded by an eager band of Pressmen and photographers. Barnard was quickly rescued from his admirers and led towards the special enclosure amidst cheers and the tooting of many motor horns. He was presented to the Lord Provost and Lord Weir who congratulated him as the winner of the £40 presented by the Corporation as a prize to the first competitor to reach Renfrew.

At this moment Raynham shot across the line on his yellow "Tinsyde" F.6 flying very low. There was only a gap of 3 minutes between the first and second arrivals—in fact within twenty miles of Glasgow Raynham was leading but was eventually passed and beaten by the D.H.4a.

After another gap of three minutes Cobham flying Capt. de Havilland's D.H.9b came in followed after seventeen minutes by Courtney on the Siddeley "Siskin"—the scratch machine.

The next arrivals were Piercey on a D.H.9—Leslie Hamilton on a D.H.9c with Lady Anne Savile as passenger—Butler on a D.H.37 followed by Cockerell on the Vickers "Vulcan." (This machine was the centre of great interest on the aerodrome.) After a short space Longton's Sopwith "Gnu" made its appearance followed by the two Boulton and Pauls 9s. The twelfth arrival was Muir on a D.H.9, and the last machine to reach Renfrew on Friday—the Avro "Baby" piloted by Payn—arrived at 7.45.

The two Blackburn "Kangaroos" put back to Newcastle on Friday night and reached Renfrew on Saturday morning after the departure for Croydon of the thirteen surviving competitors.

Saturday, Sept. 9th.

It would have been hard to find weather condition more favourable for flying then prevailed at Renfrew on Saturday morning. Raynham was first off at 9. At 9.7 Longton on the Sopwith "Gnu," then Cobham on the D.H.9b and soon after the favourite Barnard on the D.H.4a took the air. Not long after saw the departure of Cockerell on the Vickers "Vulcan." Leslie Hamilton had a little difficulty in getting his D.H.9 into the air but eventually managed this successfully. Payn's Avro "Baby" and Holmes P.9 were the next off the mark and at 10 precisely the D.H.37 piloted by Butler followed by the second P.9 (pilot Tennant) left the aerodrome. Courtney then made an excellent ascent in the "Siskin." The last machine, Muir's D.H.9, left half an hour later.

The citizens of Glasgow should without doubt be grateful to the organisers of this King's Cup Race for they were given an insight into aviation as it is to-day. To most of the spectators on Friday and Saturday the commercial aeroplane was a thing heard of but never seen.

[At any rate they saw one.—Ed.]

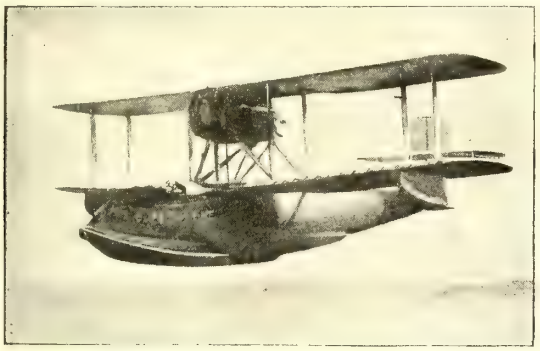
They turned up in their thousands determined to make full use of their opportunities and they were not disappointed.—C. R. A.

Another View.

After promise of a brilliant day the weather broke during the afternoon. By the time the competitors began to arrive, however, the rain had ceased and visibility was fair, with a gusty wind from the N.E. The first machine sighted proved to be Mr. F. L. Barnard on the D.H.4. He came in low from the direction of Glasgow, and crossed the line at 17.19 hours, followed at three-minute intervals by Mr. F. P. Raynham at 17.22 hours, and Mr. A. J. Cobham at 17.25 hours. This was a close enough finish to arouse the enthusiasm of the 10,000 odd spectators, the large majority of whom had never previously seen anything faster than the Joy-Ride Companies' Avros.

Mr. Barnard was accorded a great reception by the crowd on being "presented" with Glasgow's Cup for the first machine to arrive. . By some unfortunate error, said Cup had been sent to London, so that Mr. Barnard had to be content with the "promise" which he graciously accepted from Lord Provost Paxton, of Glasgow.

In the course of the "presentation" Mr. F. T. Courtney appeared coming in fairly high. His machine was obviously faster than either of the previous arrivals. His time was 17.43 hours. Later came Mr. Piercey 17.47 hours; F/O. Hamilton 17.51 hours; Mr. A. S. Butler 18.05 hours; Capt. Cockerell 18.07 hours; F/Lt. Longton 18.32 hours; Mr. C. T. Holmes 18.42 hours; Lt.-Col. Tennant 18.64 hours; Capt. A. F. Muir 18.55 hours; and lastly, S/Ldr. Payn at 19.45 hours. All pilots reported uneventful journeys on the "leg" Newcastle–Glasgow. Mr. Barnard had a little difficulty with



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KING'S CUP.

The First Two Machines to Arrive at Croydon, viz.:—

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2nd Martinsyde F.6. MR. F. P. RAYNHAM.

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water-boiling, and Mr. Holmes appeared to have been indulging in an oil bath en route. A considerable display of pyrotechnics was necessary to bring the "Baby" safely to ground, otherwise all landings were without incident.

An aerobatic display by a formation of three Camels and one of three "Nightjars" under command of F/O. Usher and F/Lt. Slatter respectively from Leuchars was greatly appreciated by the onlookers while waiting for the first machine to arrive.

All the machines made good starts with the exception of Mr. Hamilton who lost about 6 minutes. From sounds proceeding from the "Puma" one was justified in believing the rumour that a misguided mechanic had left a spanner in the crankcase. Mr. Cobham entertained with a climbing turn off the ground which one has seldom seen excelled with a D.H.9, while Mr. Courtney showed the capabilities of the "Siskin" in a very steep climb.

Ten minutes after Mr. Muir's departure, the two "Kangaroos" appeared from the East. They were completing the circuit, though scratched from the race owing to a too late arrival at Newcastle on Friday. After a refill with petrol they proceeded on the next lap to Manchester.

For the successful handling of the Renfrew "Control" considerable praise is due to Mr. J. Allison, jun., and Lt.-Col. Bristow, who were in charge.—JOHN TALBOT.

The Race at Manchester.

We had a great day in Manchester on Saturday last in connection with the King's Cup. Manchester can hardly be termed a health resort, nor has it generally the sunshine and blue skies that one would expect to find in Italy or the South of France, but, on the ather hand, it has a reputation both for rain and black smoke. Anyway, on Saturday the gods were really kind to us, and we were favoured with King's weather. The papers, particularly the *Manchester Guardian*, during the week had given us a great amount of publicity.

By 09.00 hours people began to gather at Alexandra Park Aerodrome and by 11.00 many thousands were on the ground. At 13.00 it was almost impossible to get anything to eat. The caterer explained afterwards that he had no idea that such a crowd would have gathered.

Everybody seemed delighted with the show, and what with the arrival of the competitors and the wonderful display that was put up by the squadron which came over from the Flying School at Shotwick, there was not a dull moment.

Lancashire certainly rose to the occasion and the interest displayed evidently brought home to them the wonderful advance made in aviation since the days of Doncaster and Blackpool.

The *Manchester Guardian* gave a prize value £50 to the first pilot to reach Manchester from Glasgow in the best handicap time, and a cup was given by Mr. William Kaley, value £25, to the second pilot to reach Manchester from Glasgow in the best handicap time. The Manchester Corporation gave a prize value £50 for the first pilot to reach London from Manchester.

Generally speaking the arrangements of the control were most excellent, considering that this was the first event of the kind to be held in Manchester, and we are assured that on another occasion the interest will be not only maintained but greatly exceeded.—G. L.

The Race at Bristol.

The race for the King's Cup aroused much interest in the West Country. Fully 10,000 people were present to watch the machines arrive from Manchester and depart for Croydon on their last lap. It is unfortunate that Filton aerodrome, like so many other aerodromes, affords such excellent facilities for people to see everything from the outside, and full advantage was taken of the two roads that border the N. and E. sides of the aerodrome and the hills on the other sides. Nevertheless the fact that both Bristol City 1st and Reserve XI.'s were at home at 'Soccer makes the attendance quite creditable although one must admit that aviation rubbernecks and football-fans are not of the same species. The four miles from the Tramway Centres to Filton was fairly well populated with vehicles ranging from expensive automobiles to ice-cream barrows, and a considerably augmented tramway service was unable to satisfy the wants of all.

The arrangements at the aerodrome in the hands of Mr. Herbert Thomas and Mr. Fernie, of the Brittol Aeroplane Co., were excellent, both for competitors and spectators alike and great credit is due to them seeing that Filton is the private aerodrome of the Bristol Co., and that consequently it possessed no facilities for coping with crowds. Nevertheless excellent accommodation was provided in the various temporary enclosures and the Bristol Works band performed very creditably in the Reserved enclosure.

Rumour had it that the first arrival was due at 14.00 o'clock, but soon after 13.20 Mr. Raynham's canary-colcured "Tinsyde" came in and landed, closely followed by Barnard and Cobham on the D.H.4a and D.H.9b respectively.

Soon after the arrival of Butler on the red and gold D.H.37, Mr. C. F. Uwins and Larry Carter went up on a Bristol Fighter and a Bristol monoplane and indulged in a mock aerial flight. Uwins landed after a quarter of an hour, but Larry Carter remained aloft for nearly an hour and gave a most emotioning exhibition of flying in every conceivable position.

It was really a most wonderful show but in spite of the strength of the Bristol monoplane and the excellence of the 110 h.p. Le Rhône engine it would have been much better if he had not spun over the crowd and come out what seemed like a few feet over their heads as he frequently did.

He ascended again later in the afternoon suitably strapped in and gave a further exhibition of stunting with some upside-down flying thrown in, and these two exhibitions alone were well worth the visit to Filton.

By 15.15 all the machines in the race had arrived.

S/Ldr. Payn had bad luck but put up a brilliant show on the "Baby." He had had magneto trouble and at Manchester he put in two solid hours on the thing, he not even being allowed to have a mechanic to switch on and off for him. He staggered off and had a most syncopated trip as far as Castle Bromwich where he retired after endeavouring to get to Bristol.

It was unfortunate that the three Bristol-engined machines should have been out of the race. Mr. Haig lost a pin in his valve rocker mechanism, and Major Carr's compass came adrift. At any rate those are the explanations given to the Bristol Co. Nothing was divulged re the 10-seater except that it had engine trouble and that so much time was wasted that Mr. Uwins considered it useless to continue.—LEONARD BRIDGMAN.

Bristol did exceedingly well in the offering of additional prizes in connection with the King's Cup Race. The actual list is as follows :—

BRISTOL ROTARY CLUB.—£50 and a piece of plate to the pilot of the first Bristol-built machine containing parts made in Bristol.

THE DIRECTORS OF THE BRISTOL AEROPLANE CO.—£50 to the pilot of the machine of 200 h.p. or under making the fastest Bristol.

THE BRISTOL LIBERAL CLUB.—A handsome canteen of cutlery to the pilot of the machine over 200 h.p. making the fastest handicap time to Bristol.

THE BRISTOL STOCK EXCHANGE.—A piece of plate to the pilot of the machine of 200 h.p. or under making the fastest handicap time to Bristol.

MR. A. FEATHERSTONE WITTY, Consul of the Kingdom of the Serbs, Croats and Slovenes.—A heavy salver to the pilot making the fastest handicap time from Glasgow to Bristol.

This list of prizes is by far the most extensive given by any town on the route and is exceedingly creditable when one considers that Bristol is probably the smallest of the towns visited.

TO POTENTIAL SOARERS AND GLIDERS.

In view of the revival of interest in gliding in this country, efforts are being made to resuscitate the Polytechnic Gliding Society, and any old members or persons interested are invited to communicate with Mr. B. Graham Wood, c/o THE AEROPLANE, or with Major Worswick, O.B.E., M.Sc. (late R.A.F.), Principal of the Regent Street Polytechnic.

The original Polytechnic Gliding Society flourished from 1910-12 in connection with aviation classes held at the Polytechnic Engineering School. Mr. Graham Wood, instructor in charge of the classes in those days, was in charge of field operations which were conducted on Amberley Mount, Sussex, in collaboration with the late Mr. José Weiss some of whose gliders Mr. Wood, then a qualified aviator, piloted after Mr. Gordon England had left the district. The greatest success was obtained with a "Wright" type glider, Mr. Wood doing a distance of 1,000 feet, an altitude of 40 feet, and duration of about one minute.

Mr. Wood is also prepared to construct gliders to his own and outside design (for a very reasonable figure), and he also offers technical advice and assistance to persons constructing gliders, together with workshop facilities, at his works at 62, Chalk Farm Road, N.W.1.

CELLON AGAIN.

Both Mr. F. L. Barnard's D.H.4a and Mr. F. P. Raynham's "Tinsyde," which finished first and second respectively in the King's Cup Race, were doped with Cellon. Mr. Raynham doped his machine all over entirely by himself.

Mr. A. J. A. Wallace Barr, also informs one that several other machines, including the P.9s and the Vickers "Vulcan" and the Bristols, also used Cellon Dope.

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Appointments.

Air Ministry, Sept. 5th.

Wing-Cmdr. J. Mead, C.B.E., M.C., from Inland Area Aircraft Depot to R.A.F. Depot (Supernumerary), 1/9; G. P. Grenfell, D.S.O., from R.A.F. Depot to Half-Pay List, 14/8, substituted for the previous notification dated 28/8, wherein this Officer was posted as stated above, with effect from 1/8.

S/Ldrs. R. E. Saul, D.F.C., from Iraq Group H.Q. (M.E.A.) to H.Q., Iraq Group, 1/2; K. C. Buss, from Iraq Group H.Q. (M.E.A.) to H.Q., Iraq Group, 1/2; H. J. Down, from Central Pay Office to H.Q. (C.A.) (Supernumerary), 14/7; T. H. Evans, from Central Pay Office to H.Q. (C.A.) (Supernumerary), 14/7; W. Millett (Stores), to H.Q., R.A.F., Iraq, 22/4; R. H. Peck, O.B.E., to H.Q., R.A.F., Iraq, 29/5; J. C. P. Wood, from R.A.F. Depot to School of Photography (Supernumerary), 25/9; T. F. Bullen, O.B.E., from Engine Repair Depot (M.E.) to command Mechanical Transport Workshop and Pool, Palestine, 8/7; P. Babington, from H.Q.C.A. to Air Ministry (D. of P.), 1/8.

F/Lt. (Act. Wing/Cmdr.) L. J. Lightfoot, O.B.E., from Army (R.A.P.C.) to R.A.F. Depot (Supernumerary), 14/8.

F/Lts. P. G. Scott, from No. 31 Sqdn. (India) to No. 27 Sqdn. (India), 5/1; G. H. Hall, A.F.C., from Iraq Group H.Q. (M.E.A.) to H.Q. (Iraq Group), 1/2; R. T. Nevill, from Iraq Group H.Q. (M.E.A.) to H.Q., Iraq Group, 1/2; E. Drudge, M.B.E., from R.A.F., Iraq, to R.A.F. Depot (Supernumerary), 9/7; J. C. Atkinson, from Aircraft Depot (Iraq) to R.A.F. Depot (Supernumerary), 9/7; R. S. Sugden, A.F.C., from Electrical and Wireless School to command School of Balloon Training, 11/8; M. J. James, M.B.E., from No. 70 Sqdn. (Iraq) to Egyptian Group H.Q., 22/7; D. J. Jones, M.B., to Research Laboratory and M.O.S. of I., 21/8; D. Drover, from Air Ministry (D. of R.) to R.A.F. Depot, 1/9; G. R. A. Deacon, M.C., from Flying Wing, Cranwell, to Electrical and Wireless School, 25/9; D. R. E. Thompson, from R.A.F. Depot to Electrical and Wireless School, 25/9.

The following F/Lts. to School of Photography (Supernumerary):—S. S. Benson, A.F.C., from R.A.F. Depot, 25/9; E. L. Howard-Williams, M.C., No. 25 Sqdn., 25/9; C. H. Awcock, O.B.E., from Electrical and Wireless School, 25/9; C. E. W. Lockyer, from No. 207 Sqdn., 25/9; E. B. Mason, from No. 25 Sqdn., 25/9; J. F. A. Day, A.F.C., from No. 1 F.T.S., 25/9; O. C. Bryson, M.C., D.F.C., A.M., from R.A.F. Base, Gosport (No. 210 Sqdn.), 25/9; R. M. Trevethan, M.C., from No. 207 Sqdn., 25/9.

The R.A.F. in India.

The *Morning Post* correspondent at Allahabad says that according to reports from the Frontier the Abdur Rahman Khel tribe of Wazirs, which were responsible for the attack on the Royal Welsh Fusiliers at the end of July, and whose villages in consequence were bombed from the air, have submitted. There now only remain the Gelal Khel Wazirs as recalcitrants. These developments are regarded as most encouraging, and giving further proof of the success of the present policy in Waziristan.

[This little affair proves the efficacy of the R.A.F. in India, even if their work has to be done inefficiently owing to the parsimony of the Indian Government and the lack of intelligence of General Rawlinson. If this business had been done by a punitive expedition on foot we should have got off well if it had cost 50 lives and 500 other casualties. As it is the R.A.F. has had only seven people killed in India, five of them officers and two other ranks. Four were killed in a collision while on escort work. That might have happened anywhere and had nothing to do with bad material. One was killed from an unknown cause.

Thus two only were killed in connection with this little war. Therefore, despite unintelligence in high places in India and despite all disadvantages, it is evident that the most ill-equipped and ill-handled air force is cheaper than the best-equipped and best-handled army for this particular kind of work.—C. G. G.]

The War in Iraq.

The Colonial Office states that a collision took place on Aug. 31st between a band of Turkish irregulars and a small column of Kurdish and Assyrian levies, supported by one company of the 15th Sikhs and a section of an Indian pack battery. In the fighting which followed the Kurdish levies behaved very badly, and the Indian troops, who behaved with the utmost gallantry, were sharply engaged.

Two British officers and one Indian officer were wounded and 14 Indian soldiers were killed.

In view of the unsatisfactory attitude of the Kurdish levies it was decided to withdraw the column to a position at Keui Sanjak (50 miles south of Rowanduz) out of the difficult hill country. This withdrawal was effectively covered by the R.A.F., and is now complete.

The few British officials employed in the Suleimanie region, and a certain number of local employees with their families were also withdrawn. This was done in a single day by the R.A.F., 67 persons being safely collected from a wide area.

The Basra correspondent of the *Times*, in a communication dated August 30th, states:—

"The British army in Iraq is now in the throes of transferring its responsibilities to the Royal Air Force, and it is reported that there will be very few British military officers left in the country after October 1st.

Many Indian military employees are signing new contracts with the Air Force. When one babu in Basra was asked the other day whether he was prepared to transfer his valuable services to the Air Force, he strongly protested against his doing any such thing, explaining his reluctance by the following succinct question:—"On land, sir, *here* you are; on sea, sir, *there* you are; but in air, sir, *where* are you?'"

The R.A.F. Trooping Season.

The first troopship to carry R.A.F. personnel and equipment exclusively, will sail from Southampton on September 18th, for Basrah.

Previous to this sailing the personnel of the R.A.F. have been sent to Bombay in War Office troopships, disembarked there, held up for several weeks at Deolali, a concentration camp about 100 miles up country from Bombay, and finally transported a few at a time to Basrah, according to the accommodation available after civilians had booked passages on the small boats proceeding there from Bombay.

Under the new Air Ministry arrangement, the *S. S. Braemar Castle* will proceed to Basrah, calling only at the ports of the R.A.F. stations *en route*.

The draft sailing on the 18th will probably include Armoured Car details now forming at Manston and proceeding to Baghdad.

PERSONAL NOTICES.

Death.

MACLAURIN.—At Vancouver, on September 11th, as the result of an aeroplane accident, Major C. MacLaurin, D.S.C., Air Station Superintendent, Canadian Air Board and late R.N.A.S. and R.A.F.

Major MacLaurin was in command of the Canadian Government Air Station at Jericho Beach, Vancouver, from the time of its formation by the Canadian Air Board. He was an exceptionally able officer as well as being a skilful pilot. The amount of patrol work done by his station, in checking smuggling by sea and in survey work and in fire patrols was enormous considering the defective equipment forced upon the Canadian Air Board by the parsimony of the Canadian Government.

The first report of Major MacLaurin's death says that his machine crashed in shallow water and that he was pinned under it and drowned. That would seem to indicate a broken control of some sort, as he was not likely to make a mistake in flying. The equipment of his station, when last reported, was American-built H.S.2L. flying-boats (a bad copy of our Felixstowe boats). These were never too well made when new and at this date must be simply scrap, no matter how carefully maintained. It is possible that he may have been on one of the old war-time English machines presented to the Canadian Government by the Air Ministry. There were at any rate good when new, but by now must be nearly as rotten as the American-built machines.

Thus it would appear that the Canadian Government is starting to murder its splendid flying personnel by its meanness just as the Indian Government has been murdering the flying personnel of the R.A.F. and as the British Government in 1915-16 murdered the officers and men of the R.F.C.

To Governments the lives of brave men are always cheaper than money. Very little expenditure in money will cause adverse votes. But many men can be killed before the taxpayer is moved to action. The Canadian Air Board may be absolved from blame. It has done its best for its personnel, but it has been cramped for money, partly because it has no Minister of its own and is merely a part of a Defence Ministry under a soldier and partly because the politicians of Canada and the Canadian Press are even less alive to the value of defence forces and more alive to political influences than are our own.

All will mourn the loss of a very gallant officer, sacrificed like so many of our other friends, in the game of politics.—C. G. G.

Engagement.

BRACKLEY MOND.—A marriage has been arranged, and will shortly take place, between Maj. Herbert G. Brackley, D.S.O., D.S.C., R.A.F. (Lieut.-Cmdr. attached I.J.N.), eldest son of Mr. and Mrs. Brackley, of Harringay, and Frida H. Mond, elder daughter of Mr. Robert Mond, J.P., of Combe Bank, Sevenoaks, and niece of Sir Alfred Mond, First Commissioner of Works.

Birth.

L'ESTRANGE MALONE.—On September 3rd, at 36, Buckingham Gate, S.W.1, to Leah, the wife of Cecil L'Estrange Malone, M.P., a daughter.

COMMERCIAL AERONAUTICS.

The London Terminal Aerodrome.

CONTINENTAL ARRIVALS AND DEPARTURES

ABBREVIATIONS:—A.D.—Aircraft Disposal Co. B.A. Berkshire Aviation Co. B.C.—Bristol Aeroplane Co. C.A.—Department of Civil Aviation. D.A.—Daimler Airway. D.H.—De Havilland Aircraft Co. G.E.—Compagnie des Grands Express Aeriens. H.P.—Handley Page Transport Ltd. I.L.—Instone Air Line. K.L.—Koninklijke Luchtvaart Maatschappij. L.A.—Leatherhead Aviation Services. M.A.—Messageries Aeriennes. M.W.—Marconi Wireless Telegraph Co. Ltd. P.O.—Privately owned. W.A.—Westland Aircraft. S.F.—Surrey Flying Services.

ANALYSIS OF FIGURES.

For week ending Sept 10th

Number of trips made during week.—I.L. 27, H.P. 22, D.A. 20, M.A. 15, G.E. 12, K.L. 12, D.H. 1.

Number of passengers carried.—I.L. 137, H.P. 151, D.A. 66, M.A. 75, G.E. 33, K.L. 12, D.H. 3.

Total number of trips by British machines: 76 carrying 357 passengers.

Total number of trips by foreign machines: 5, carrying 76 passengers.

Trips per day.—Monday 20; Tuesday 23, Wednesday 19; Thursday 23; Friday 22; Saturday 22; Sunday 6.

Statistics.

Machines, 135; Passengers, 433; Crews, 245; Total Personnel, 678.

Corresponding week last year:—

Machines, 104; Passengers, 356; Crews, 127; Total Personnel, 483.

Corresponding week, 1920:—

Machines, 129; Passengers, 285; Crews, 154; Total Personnel, 439.

NOTES OF THE WEEK.

The chief interest this week has naturally been in the machines for the King's Cup Race. The Air Lines have been going on much as usual. On Friday a Daimler D.H.34 took

a spare engine over to G-EBBU in Paris. This was fitted and G-EBBU brought its invalid engine back on Sunday. There was a very strong head wind blowing on Sunday and the D.H.34s had to land at Lympne on the way back for petrol.

On Monday for the Aircraft Disposal Company, Capt. Stocken was testing two D.H.9s, and Mr. Perry was up twice on an Avro. The following morning he was again flying the same machine and later in the day Capt. Stocken left for Brussels. On Wednesday Mr. Perry and Mr. Piercey were flying their King's Cup machines. Capt. Stocken also was making two flights on D.H.9s, after which he and Mr. Hayns left for Brussels with these machines. On Thursday Mr. Piercey and Mr. Perry were once again out on their race machines.

On Friday, when it became known that Mr. Perry had landed at Northolt, Capt. Stocken with Major Grant as passenger flew over to Northolt on a D.H.9 to find out the cause of the trouble and returned when they had found out what it was, together with Mr. Perry on his machine. The following day, before the arrival of the winning machine, Major Grant organised a small race in which two Disposal S.E.5as and a "Tinsyde" plus an R.A.F. Gloucestershire "Mars VI." competed.

Mr. Piercey was married in Croydon on Tuesday. Everyone will wish the "Count Vodka" and Mrs. Piercey all the best.—G. D.

CONCERNING THE SLOUGH ACCIDENT.

With reference to the report on the accident to Mr. Chapman's Avro, which appeared in this paper, the following letter has been received:—

Sir,—With reference to the report in THE AEROPLANE of August 23rd, I, as one of the casualties mentioned in the crash at Slough, certainly do not agree with the remark regarding the slackness at the above Hospital, and feel sure the Editor has been misinformed regarding details.

I am more than satisfied with the treatment received here, and can but say that had it not been for the prompt treatment and attention shown me, I should most probably not be in the position to make this remark.

I feel positive the Editor has received a completely wrong account of things.

(Signed) A. B. GRAHAM, Pilot.

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The following are the Matches and Teams:

WEDNESDAY, THURSDAY, FRIDAY, SEPTEMBER 20th, 21st, 22nd, 1922.

NORTH	v.	SOUTH
HOLMES (Yorks.)		HOBBS (Surrey)
GUNN, G. (Notts.)		Rev. F. H. GILLINGHAM (Essex)
TYLDESLEY, E. (Lancs.)		HARDINGE (Kent)
A. W. CARR (Notts.), *Captain*		WOOLLEY, F. E. (Kent)
KILNER, R. (Yorks.)		P. G. H. FENDER (Surrey), *Captain*
GEARY (Leicester)		Hon. H. L. TENNYSON (Hants.)
WADDINGTON (Yorks.)		N. HAIG (Middlesex)
OATES (Notts.)		A. H. H. GILLIGAN (Sussex)
F. W. MUSSON (Lancs.)		A. E. R. GILLIGAN (Sussex)
PARKIN (Lancs.)		PARKER (Gloucester)
A. N. OTHER.		LIVSEY (Hants.)

SATURDAY, MONDAY, TUESDAY, SEPTEMBER 23rd, 25th, 26th, 1922.

R.A.F. (Ex Service) XI.	v.	THE REST OF ENGLAND.
HOBBS (Surrey)		GUNN, G. (Notts.)
HARDINGE (Kent)		Rev. F. H. GILLINGHAM (Essex)
A. JEACOCKE (Surrey)		TYLDESLEY, E. (Lancs.)
WOOLLEY, F. E. (Kent)		A. W. CARR (Notts.)
F. W. MUSSON (Lancs.)		Hon. L. H. TENNYSON (Hants.), *Captain*
A. H. H. GILLIGAN (Sussex)		KILNER, R. (Yorks.)
P. G. H. FENDER (Surrey), *Captain*		M. HOWELL (Surrey)
PARKER (Gloucester)		N. HAIG (Middlesex)
GEARY (Leicester)		A. E. R. GILLIGAN (Sussex)
WADDINGTON (Yorks.)		PARKIN (Lancs.)
S. L. AMOR (Somerset)		LIVSEY (Hants.)

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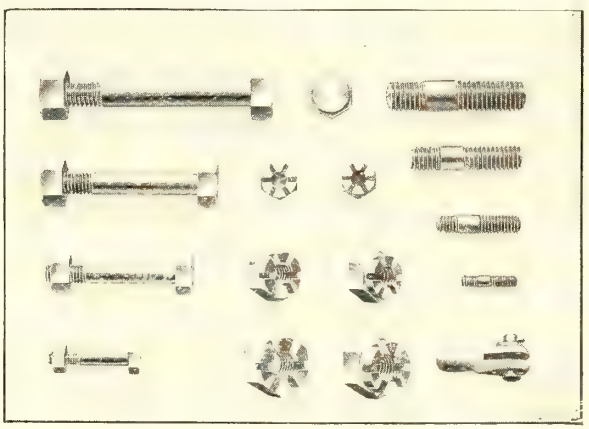
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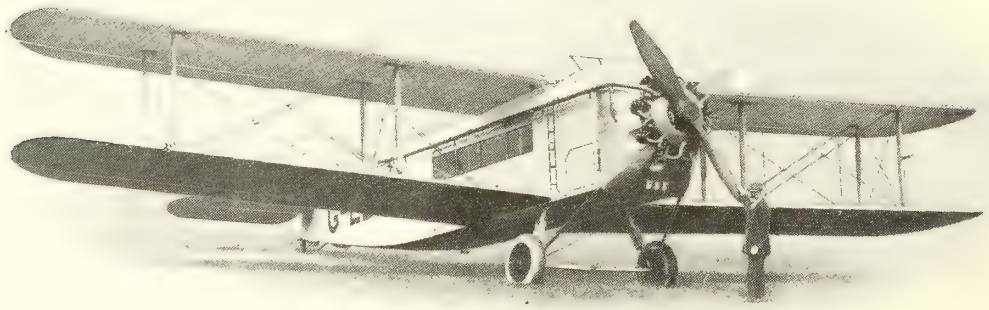
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WEDNESDAY, SEPT. 20, 1922.

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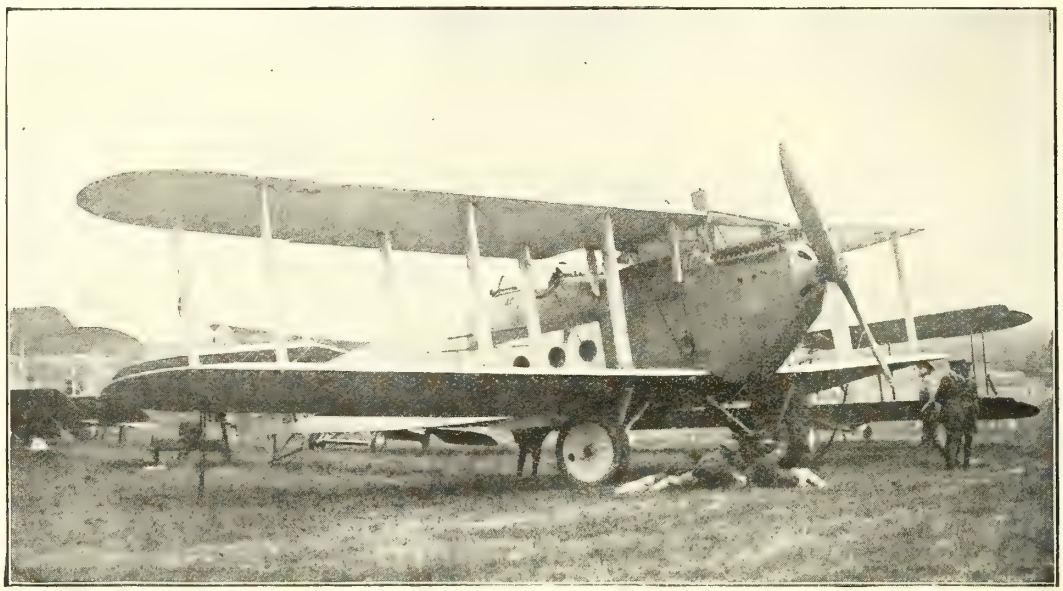
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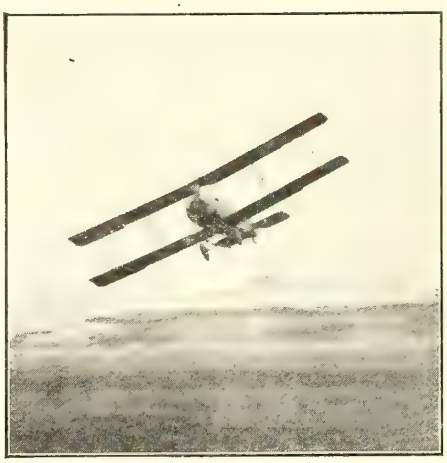


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ON THE R.A.F. IN IRAK.

On Thursday, September 14th, the first R.A.F. troopship, the Union Castle liner, *Braemar Castle*, left Southampton, having on board about 1,100 officers and men of the Royal Air Force for Irak. The officer commanding R.A.F. troops is Group-Cept. the Hon. J. D. Boyle, and with him as Adjutant is F/Lt. Wann, late O.C. the ill-fated airship R.38. The R.A.F. personnel on board comprise 81 officers, 18 warrant officers, 10 nursing sisters, and 1,000 other ranks, drawn from the R.A.F. Inland Area Depot at Uxbridge and from the School of Technical Training (Men) at Manston. The latter draft includes the personnel of the Armoured Car Wing under Wing-Comm. Primrose.

The occasion is notable, for it marks the further coming into its own of the R.A.F. By the time these troops arrive Air Vice-Marshal Sir John Salmond will have taken over the High Command in Irak and all connection with the mess and muddle which is apparently inseparable from the Indian Government will have been severed. It is possible also that by then Sir John Salmond will have been given the step in rank to Air Marshal which was foreshadowed in the last Air Estimates.

Hitherto R.A.F. personnel going to Irak have suffered all the discomforts peculiar to that incompetent administration in India which was responsible for the hospital scandals in Mesopotamia and the troop train scandals in India during the war and for the smaller but equally gross scandal of the R.A.F. equipment since the war. Officers and men have been sent by respectable liners to Bombay—though one draft at least from Egypt last year was sent on a hired tramp which was not fit for a pig-boat—and from Bombay they have been sent a day's journey up country to a pestilential hole called Deolali, where there is nothing but sand, scrub, bare hills, and the worst mess in the British Empire.

There they were held for weeks, and sometimes for months, till room could be found for them on the uncomfortable little steamers running from Bombay to Basra. The owners of these steamers sold as many berths as possible to civilian tradespeople and so forth who were going to Basra. The R.A.F. officers were given what berths were left—naturally the worst—and the men presumably were carried as cargo with any other live-stock which might be on the move up the Persian Gulf. The whole thing was a scandal worthy of the Indian Government's methods since Mr. Lloyd George's incompetent friends have been put in power there. The Air Ministry did its best, but, as the R.A.F. equipment scandal shows, the Air Ministry carries little weight in India.

Now happily Irak is free from Indian misrule and is the R.A.F.'s own private affair. The political side of Irak is under that able statesman Mr. Churchill, in so far as he being still a subordinate can do his work free from the interference of Mr. Lloyd George and his immediate satellites. Mr. Churchill as most people know, is a firm believer in Air Power and is the best friend the R.A.F. ever had. The militant side is under the Chief of the Air Staff, for whom Sir John Salmond is the best possible deputy on the spot. Sir John is in the happy position of being a commanding officer who will have a free hand and will not be afraid to use it.

Our Air Force in Irak.

It is worth while to set on record here the official description of the forces with which Sir John Salmond will begin his administration of Irak. These are as follows:—

Headquarters, Baghdad City; No. 1 Squadron ("Snipe"), Hinaidi, Baghdad; No. 6 Squadron (Bristol "Fighters"), Baghdad, W.; No. 8 Squadron (D.H.9as), Hinaidi; No. 30 Squadron (D.H.9as), Baghdad, W.; No. 45 Squadron (Vickers "Vernons"), Baghdad; No. 55 Squadron (D.H.9as), Mosul; No. 70 Squadron (Vickers "Vernons"), Hinaidi; No. 84 Squadron (D.H.9as), Shaiba or Basra.

These are the fighting units. There are other units as follows:—Aircraft Depot, Baghdad, W.; Stores Depot, Magil, Basra; Meteorological Stations at Baghdad, Basra, Shaiba, Mosul and Ramadi; the Central Supply Depot; Baghdad Signal Section; Armoured Car Wing Headquarters; Nos. 3, 4, 5, and 6 Armoured Car Companies; Basra Group H.Q., Base Supply Depot; Basra Signal Section; R.A.F. Prison; Rest Camp; the Armoured Train, and the Inland Water Transport Section.

It is not a big force with which to do the work of an Army Corps, but owing to the peculiar conditions it should be nearly enough in time of peace when properly equipped—as it should be within the next year or two—and brought to that state of efficiency which is usual under Sir John Salmond.

The Organiser of Order.

The officer who has hitherto commanded the R.A.F. Irak is Group-Capt. Amyas E. Borton, C.B., C.M.G., D.S.O., A.F.C. No officer in the R.A.F. is more respected or better loved by those under him than is Group-Capt. Borton. He is a soldier of the best pre-war type who has served in the R.F.C. and R.A.F. since the earliest days of the war. For the past six years at least he has been in Egypt, Palestine and Irak. He was primarily responsible for the air tactics of General Allenby's great victory over the Turks in Palestine, just as Sir Geoffrey Salmond was responsible for the air strategy of the Middle East Area.

After the war he flew with Sir Geoffrey to Irak and India. Later he surveyed the air route to Australia with Captain Ross Smith. Then when the Middle East Area ceased to exist as such, he was given the most important Middle East Command, that which he still holds at the moment.

He is in no sense being superseded. It is merely that his force is being absorbed into a much bigger force under a very much senior officer. One imagines that Group-Capt. Borton will remain to do as excellent work under Sir John Salmond as he did under Sir Geoffrey, until such time as he is due home for well deserved leave and, one hopes, promotion. None has deserved better of his Chiefs, for he has carried on over a most difficult period with obsolete or obsolescent material in the worst possible climate. He has had the usual difficulties of the constant shifting of personnel, so that hardly any of his subordinates remained long enough to learn their jobs. And he has had the also usual trouble of incompetent officers being allowed to remain in the R.A.F. while the best were allowed to get themselves demobilised after the war.

Under all his difficulties he has done well. He has maintained and increased the prestige of the R.A.F. among the native population. He has made a success of the Desert Route. And he has retained the respect and affection of those who have served with and under him. It is a record of which the R.A.F. in Irak may well be proud, and one which deserves to be made known for the good of the *esprit de corps* of the R.A.F. now that the big changes in Irak are taking place.

Why We Hold Irak.

In view of these changes, and especially in view of the fact that what may now presumably be called the Rothermere Press is endeavouring to queer the pitch of the R.A.F. in Irak by another of its periodical attacks on the British occupation of that country it seems worth while to discuss once more the reason for our holding Irak at all. One is encouraged to do so by various and sundry letters received during the past week or two from R.A.F. personnel conveying thanks for the article on the truth about the R.A.F. in India which appeared in this paper a couple of weeks ago. The writers of these letters said frankly that until they read that article they had not understood that the responsibility for the R.A.F.'s troubles rested on the Indian Government. It is therefore possible that an explanation of the position in Irak may be of use.

Let it be understood therefore that the reason for our occupation of Irak is first, foremost and all the time oil. Our aeroplanes cannot move without oil and its derivative petrol. Our warships and our merchant ships now largely use heavy oil fuel. Our mechanical transport on land, whether air force or army or mercantile, depends on oil and petrol. Without oil and petrol we should be starved out and defeated as surely as if we were deprived of our supply of food from overseas.

At present we draw our oil supplies chiefly from Mexico, the United States and the East Indies. We get some from

Persia and a little from Roumania and the Caucasus. Of these the Mexican and the Persian supplies alone are under English control.

Now despite all the protestations of all nations that universal and eternal peace is their one desire, and despite all the fuss which that absurd institution which calls itself the League of Nations makes about itself, those in High Places know perfectly well that the abolition of war between nations is just as possible as is the breeding of a home population which needs no police force, or the organisation of a State which needs no government. In other words we are just as sure of another war sooner or later as we are that the sun will rise to-morrow.

The careless optimist will say that the world is so exhausted that no nation can go to war for another thirty or fifty or a hundred years. The student of history and of humanity knows that such a belief is pure nonsense.

The Mongol Invasions.

Anybody with reasonable intelligence can see that the next great war must be with Russia, the vanguard of the Mongol race which is the natural enemy of the Nordic race—that is to say the Teutonic tribes, the Germans, Anglo-Saxons, Jutes, Franks, Burgundians, Balts, Scandinavians and so forth, all of whom are just as distinctly delimited to-day as they were when they spread West over Europe between 1,500 and 2,500 years ago under the pressure of the Mongol tribes and swamped their Keltic predecessors.

Time and again in this 1,000 years the Mongols pressed Westward and cut their way into Nordic territory only to be forced back again, sometimes leaving small tribes behind, sometimes retiring without trace. Thus Attila's Huns were driven back from Chalons and left little permanent evidence of their visit. But farther east we find the Mongoloid Prussians (or Bo-Russians) imposing themselves on our German cousins. And we find the Czechs and Slovaks and Poles a little South of them. Farther South we find certain sections of Hungary distinctly Mongol. Farther South again there are the Croats, Serbs, Slovenes, Bulgars and up-country Greeks all of Slavonic Mongoloid origin. And in Russia proper we find the position reversed, the bulk of the people being Mongol with little odd patches of the original Nordic tribes among them.

Since Attila's day there has been no organised Mongol move Westward. In Napoleon's decline Russian armies swept across Europe into France and Croat mercenary troops in the Austrian service came also, committing on allies and enemy alike the atrocities which are the speciality of the Mongoloid peoples, but they were more or less under control and were withdrawn when the war was over. They were merely paid soldiers not part of a racial movement. Alexander of Russia desired to defeat Napoleon not to conquer Western Europe.

Historical Parallels.

To-day the position is more dangerous. Russia has been broken up by a revolution similar to that in France 130 years ago and differing from it only in the savagery with which the Russians treated their victims. The French "Terror," even at Nantes, was mild compared with that which has devoured Russia for the past four years. The course of the Russian revolution has followed the French revolution with almost ludicrous exactitude. Phase for phase and incident for incident it has been the same, even to the betrayal and desertion of the loyalists by English politicians. To-day the Russian Army is being reconstructed by Brussiloff and other former Royalist officers just as Moreau and Dumouriez reconstructed the French revolutionary armies. "Terror" succeeds "Terror" just as Robespierre, Marat, Danton and others followed one after another. Even the French "trade missions" to England corresponded exactly to that of the amiable Mr. Krassin and his elegant female accomplices.

Some say that Russia can never be got under the control of one man, that the people are too many and the spaces too great. They forget that railways, telegraphs, wireless, automobiles and aeroplanes have diminished space, and that thus the time-factor in the two revolutions remains the same.

The Russian Napoleon.

The French Revolution began in 1789, but nobody heard of the Neapolitan-Corsican Napoleon Bonaparte until 1796. The Russian Revolution began in 1917. We are not likely to hear of the Russian Napoleon till 1924 at the earliest. But it is as well to be prepared for him.

He will not be a Russian any more than Napoleon was French. He may be a Turcoman, a descendant of Scander Beg. He may be a Balt, a descendant of the days of Gustavus Adolphus. He may be a pure Mongol, a descendant of Attila. Or he might even be a Turk throwing back to Saladin or a Persian throwing back to Darius. But it is pretty safe to bet that somewhere in the Red Army of Russia to-day is a young officer whose name in our later days and in our children's time will be far more terrible than that of Von Hindenburg or Von Ludendorf or Von Falkenhayn.

And in those days we shall thank God that we have alongside our solid British infantry those splendid fighting men who opposed us in the plains of France under such brilliant leaders as Rupprecht, the rightful King of Bavaria, and the other Imperial German generals: men who though overwhelmed by numbers yet saved their Fatherland from the horrors of invasion. With Germany and England in the North and with France and Italy in the South Europe will again be saved from the Mongol tribes.

Our Motive Power.

When that time comes the Russians will have all the oil-supplies of Galicia, Roumania and the Caucasus and it would not be safe to depend on either American or East Indian supplies. Japan will probably jump at the opportunity for a campaign of aggrandisement in the Pacific and we shall be too busy to interfere. Japan will then either seize the Dutch East Indian oilfields or will at any rate buy up all the East Indian oil supplies for her own ships and aircraft.

The United States may be at enmity with Europe and may cut off supplies. The latest American "high wall" tariff move tends in that direction. Or America may try to dispute Japan's monopoly of the Pacific and commandeer all the Mexican supplies for her own use in that work.

In any case, nobody preparing for the great war with Russia would care to depend on the Dutch East Indies or America for our fuel supplies. There remains then nothing but our own oil-fields in Persia, and these must be protected at all costs.

The Protection of the Pipe-Line.

Many months ago it was stated that a great pipe-line for oil is to be run across the desert from Basra to Jaffa so that we may draw our oil from a Mediterranean port instead of shipping it round by the Persian Gulf and the Red Sea—where the tankers can be attacked by Japanese destroyers.

The protection of that pipe-line and the oil-fields in Persia which will supply it is the key to the whole strategy of the great war. If we lose those oil-fields and the pipe-line we shall be down and out as badly as if we had lost the command of the seas in the last war.

Now by the Grace of God, who also put Switzerland where it is so that French and German troops can fight on the same side without fighting side by side, the Persian oil-fields and the pipe line can only be reached by long and arduous routes on any one of which a great army can be held at bay by a comparatively small air force.

The Northern frontier of Persia is a mountain ridge with almost perpendicular cliff face in which the few passes can be blocked by a few heavy bombers and the passes turned into butchers' shops much as the R.A.F. dealt with the Turkish transport in Palestine. That makes any direct Russian advance from Turkestan almost impossible if we have sufficient air force.

The roads across Persia from the Caspian are few and they also traverse passes which can be blocked by aircraft. There remains then an advance through the Caucasus and along the Tigris down the line up which our troops advanced to Baghdad. And that is why the R.A.F. is where it is, at Baghdad.

Baghdad the Key.

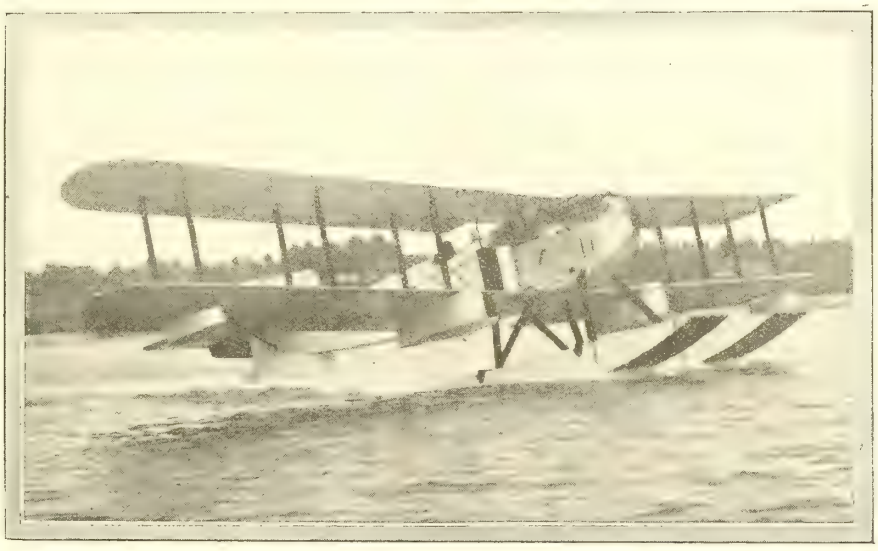
Recently sundry foolish people have been writing to the papers asking why we do not merely occupy the Basra area and defend the oil-fields from there? Either they are ignorant of the pipe-line's existence or they are ignorant of strategy or they are ignorant of geography, or of all three. It must be obvious to anybody who has ever looked at a map of the Middle East that Baghdad is the strategic key of the whole scheme.

If we leave Baghdad we leave all the roads into Mesopotamia from the Caucasus and the Southern Caspian open for invasion. Armies concentrated in the Lake Van area would have a clear road by Mosul to Baghdad as would troops coming in along the road through the Pai Tak Pass by which General Baratoff's perfectly useless Russian cavalry reached Baghdad during the war. And this is true whether Turkey is on our side or not.

Any R.A.F. officer or man who takes his profession seriously ought to read Lt.-Col. J. E. Tennant's Book "In the Clouds above Baghdad" and so ought the newspaper man who pretends to write on the Irak question, but that is too much to expect from any journalist. There will be found the best possible explanation of the way in which an air force at Baghdad can command all the approaches to the one solitary road down the river to Basra

But once let an enemy force establish itself at Baghdad and the oil-fields and the pipe-line are at once open to attack. Air raids and raids on land along the caravan routes to the South-West could reach the pipe-line, and with the prestige acquired by holding Baghdad an enemy could send forces right through the feeble Persians to the North and East of the river and beyond the desert to work round by numerous more or less open roads to the oil-fields.

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Also the local Arabs and Persians, always treacherous, could be stirred up by an enemy at Baghdad to do damage to the wells and the pipe-line, which would then be very difficult to protect. But so long as we hold Irak and Palestine, so long as our aircraft patrol the country from Palestine across to Irak and South to the Persian Gulf, roughly a half circle, so long the local population can be kept quiet and the wells and the pipe-line will be left undisturbed.

The Hypocrisy of Protection.

Some well-meaning people have also written to the daily press justifying our holding Baghdad by talking about our duty to protect the Arab population who have been given into our charge and the value of the agricultural land on each side of The River and so forth. That is pure nonsense or pure hypocrisy. The Arabs no more deserve protection than do the Egyptians.

If we had not occupied Khartoum in 1898 or so the Mahdi and his Dervishes would have chewed up the wretched Gyppo fellaheen in a year and by now Cairo would have been a ruin and the miserable hounds who agitate against our rule would have been slaves in the Soudan or unpleasantly dead. But we took and still hold Khartoum because we want the Canal Zone kept quiet and because we rather like Egypt as a winter resort and because Egyptian cotton is useful. If the Gyppos become too unpleasant all we have to do is to remove our troops and let in the Soudanese.

Similarly we hold Irak not because we love the Arabs or because King Feisul is any particular use or because we want to grow corn there, but because we want Persian oil. If we quit Baghdad we let in the Kurds from the hills, who will loot Baghdad clean long before Kemal Pasha and Co. can get down from Angora to take possession. It would be rather fun to do it, but for the trouble of rebuilding all the places the Kurds would have destroyed.

Much in the same way we hold the North-West Frontier of India because we want Indian trade maintained on a sound financial basis and not because we love the pious Hindoo, whether of Calcutta or anywhere else. But for us, as our Pathan pals are always telling us, there would not be a virgin left in India.

Our Everlasting Task.

Year by year we send the pick of our best fighting families to die in the Soudan, in Irak and on the Frontier so as to protect the politically minded Egyptian, Arab and Hindoo scum who agitate behind our fighting line which protects their wretched skins from better men than they. And pious humbugs at home talk of our savagery when we use the whip or the boot to enforce our rule over this scum.

And year by year ignorant newspaper editors or malicious newspaper proprietors abuse our officials who by maintaining these forces abroad assure the safety of the Empire in which and by which those newspaper people live.

Yet, being a nation of shopkeepers we keep on doing it for the good of our trade. And when a big war comes we find that these little frontier wars of ours have been the nursery of the finest officers and other ranks in the world.

The Nursery of Air Power.

Irak is our newest training ground and the R.A.F. is our newest First Line of Defence. It is the school in which are being trained the officers and men who will be the backbone of our defence against the Mongol invasion of the near future.

And when that invasion is attempted Irak will be the source of our supply of power for all our mechanically-driven implements of war on land and water and in the air.

That surely should be a good enough reason for the presence of the R.A.F. in Irak. And it should be sufficient inspiration to every officer and man in Irak to do his duty to the best of his ability.—C. G. G.

AN INTER-CITY CHALLENGE.

As the result of seeing the enthusiasm caused among the Great British Public along the route of the King's Cup Race Lieut.-Col. Spenser Grey has been inspired with an idea which has a great deal more to recommend it than have 99 per cent. of the schemes which are backed enthusiastically by Press and Public alike. He suggests that an Inter-City Aeroplane Race should be organised in which entrants, instead of being private individuals or aircraft firms, should be the cities and big towns of Great Britain, and that each entrant should build and enter its own machine.

Naturally towns or cities which had no aircraft factories would have to get their machines built elsewhere, but such machines would be assembled and tested at the nearest aerodrome to the place which found the money to build it.

This race could be held either concurrently with future King's Cup Races, if any, or as a separate event

Col. Grey suggests the following preliminary conditions, regulations, rules or whatnot :—

(A) Every machine must be specially built for the race and must be of a design approved by the Air Ministry—this one may add would be the opportunity for building machines, as suggested last week, with limited cylinder capacity, proved low speed, and a standard load.

(B) The machines after the race must be offered as a gift from the town or city to the Air Ministry, should they be wanted as the nucleus of or as an addition to a Territorial Air Force. They would, however, be available for future King's Cup races, Aerial Derby races and so forth.

The advantages of such a competition are obvious, for, as Colonel Grey suggests : (1) It would provide work for designers and constructors and would thus improve the breed of our aircraft : (2) It would give employment to pilots and mechanics while the machines were on test; (3) It would materially assist progress in design; and (4) It would increase still further public interest in aviation by stirring up local patriotism.

It may be argued all this is really the Government's work, but, as Colonel Grey says, surely it is useless to clamour for economy and at the same time to demand a large Air Force. It is also well to remember that the voice of 99 per cent. of the people who criticise a Government are only heard once in many years, and that is when they record their vote at a General Election. Here in Colonel Grey's scheme is an opportunity for the people who are really interested in aviation and who honestly believe in the need for a big Air Force to prove their faith by subscribing their pounds, shillings and pence for the building of their local aeroplane for the Inter-City Aeroplane Championship.

The scheme has been worked out in considerable detail by Colonel Grey on lines which will make the financing of the individual machines an easy task provided that the general outline of the competition is approved by some of the leading cities.

One city in particular seems likely to set the ball rolling by issuing a challenge to the other cities of England, and that is Leeds, which though it has not been so prominent in the history of aviation as Bristol and Manchester, has at any rate the credit of having been the scene of the constructional experiments of Mr. Robert Blackburn in the very early days of aviation before real flying began. At a dinner given in Leeds on Saturday last to Colonel Grey and Mr. Kenworthy in honour of their strenuous efforts to persuade the two veteran "Kangaroos" round the King's Cup course Mr. Stuart A. Hirst, erstwhile Chairman of the Blackburn Co. and still well in the limelight whenever aviation in Leeds becomes momentarily of public interest, announced that he had studied Colonel Grey's scheme and would like to see the production of a machine in the name of Leeds coupled with a challenge to any other town or city to beat it in the race.

Also Mr. Hirst said that he intended to guarantee a substantial prize to the pilot who should put up the best performance on a Yorkshire-built machine in the race for the King's Cup. This suggests that the city of Leeds might well issue a direct challenge to all other cities, quite without reference to the King's Cup Race, and propose a sweepstake among the entrants to provide prizes for the first three pilots, because a remarkable feature of the King's Cup race was that apart from local prizes there were no prizes for the pilots, either first, second or third, for their position at the finish of the race.

Colonel Grey has given one to understand that he can assure the presentation by a prominent personage of a Challenge Cup for the Inter-City race, if it materialises, which cup would be held year by year, presumably by the local Aero Club which organises the subscription-list for the winning city.

Altogether the idea is good, so good in fact that one doubts whether it will be put into practise. Either jealousy between daily newspapers will prevent it from achieving the publicity necessary to success, or lack of an energetic organiser in a number of cities will result in lack of financial support. But properly worked and intelligently handled in the local and national newspapers it might well prove to be the great aeronautical success of 1923.—C. G. G.

THE KING'S CUP AFFAIR.

There has been for the past ten days much discussion among those who fly and those who are merely interested in flying as to the lack of action of the Stewards of the Royal Aero Club or the Racing Committee of the Royal Aero Club, or whoever else was responsible for the said lack of action, in not disqualifying Mr. Barnard in the first stage of the King's Cup Race for starting ten seconds before the starter's flag fell. It would seem that the great majority of people

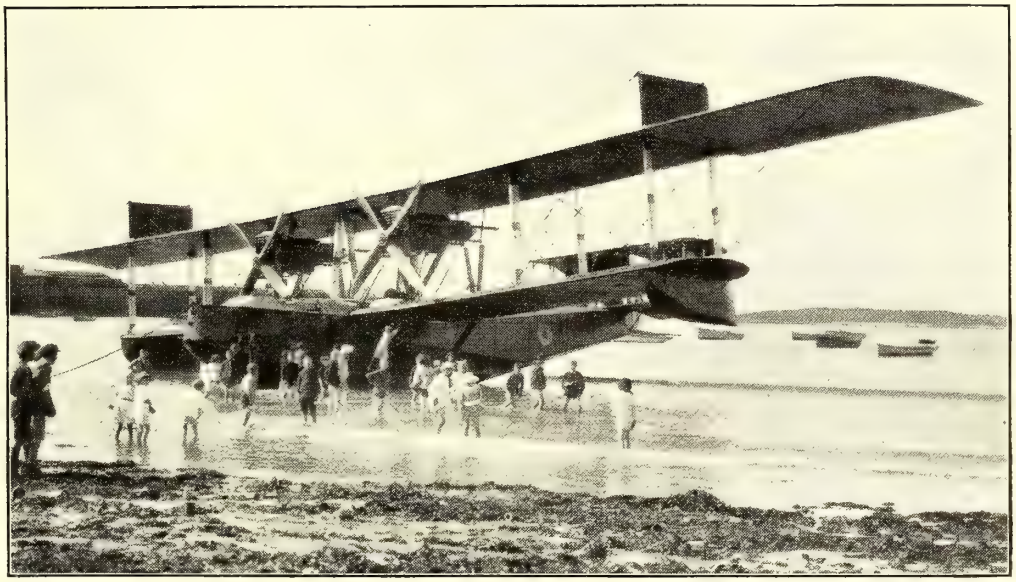
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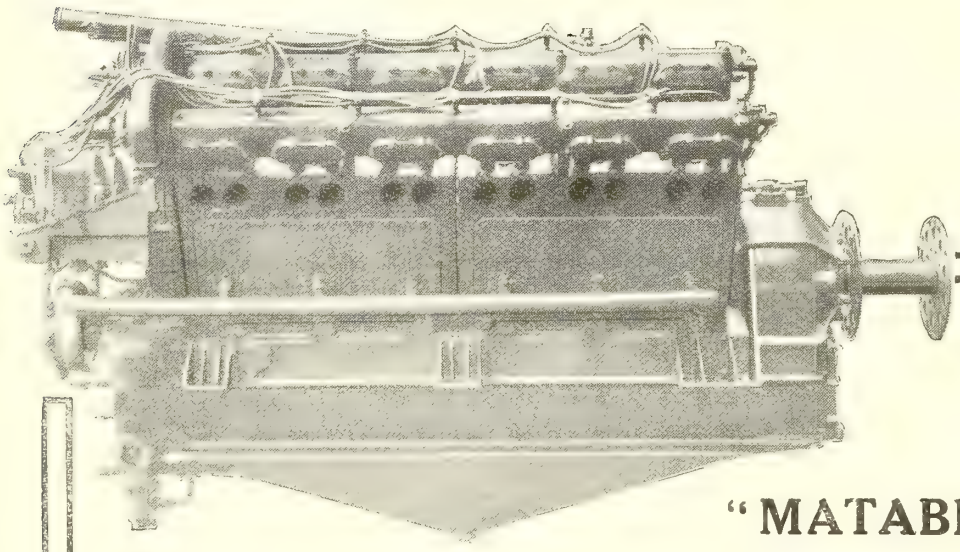
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THE WEEKLY COMMENTARY.

The story of Capt. Sayers' visit to Germany to investigate gliding and soaring begins below.

Although he actually saw very little of actual flying he was able to acquire much very interesting first-hand information both as to the theories and the practice of the German students of this very interesting branch of aeronautics, which should be of great value to all who propose themselves to undertake similar experiments.

It is perfectly obvious that a successful glider is a very highly developed and refined machine, and that many very important aerodynamical problems effecting the efficiency of aeroplanes can be solved by experimental gliding work with much less cost than by the manufacture of engined aircraft.

A VISIT TO THE WASSERKUPPE.

By W. H. SAYERS.

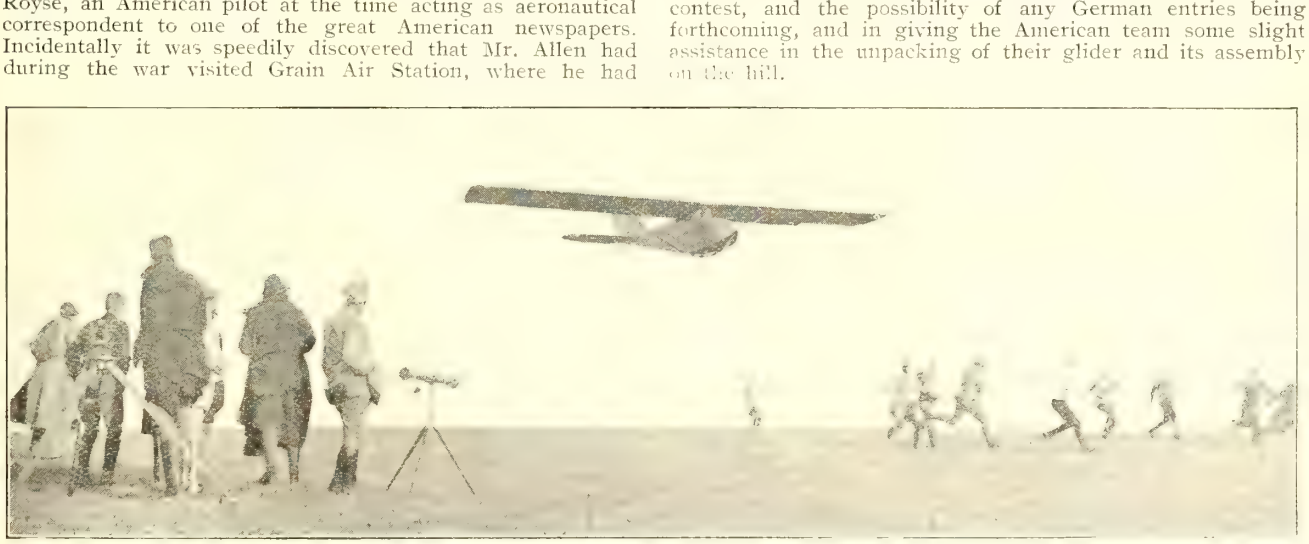
The very remarkable gliding performances made during the last week or so at the recent German competition, and the very great interest roused in this country by these flights, and by the *Daily Mail's* offer of a £1,000 prize in this country for similar performances, seemed to call for a personal investigation of the German work on the scene of the actual flights. Accordingly, with Major M. E. A. Wright, who has long been interested in gliding, the writer left for Gersfeld—the little town at the foot of the Wasserkuppe, which is the headquarters of gliding in Germany—on the morning of August 30th, arriving safely at that town in the afternoon of Thursday, 31st.

After presentation of such credentials as we possessed to Herr Oskar Ursinus—the editor of the German journal *Flugsport,* and a prominent member of the committee which is responsible for the organisation of the German competitions—we successfully booked rooms at the Hotel Adler, and proceeded to dine. We were conducted to a long table, at which were seated five other male persons, who were shortly discovered to be habitual users of the English language. These proved to be the American gliding team, who had been present at the French competition, and had now come on to Gersfeld to try their abilities on the Wasserkuppe. The team consisted of Mr. Edmund T. Allen, a well-known American test pilot, and Messrs. Otto C. Koppen and L. A. Agnew, both students of the Massachusetts Institute of Technology. With them were Mrs. Allen and Mr. M. W. Royse, an American pilot at the time acting as aeronautical correspondent to one of the great American newspapers. Incidentally it was speedily discovered that Mr. Allen had during the war visited Grain Air Station, where he had been shown round by Major Wright, and naturally cordial relations were very soon established.

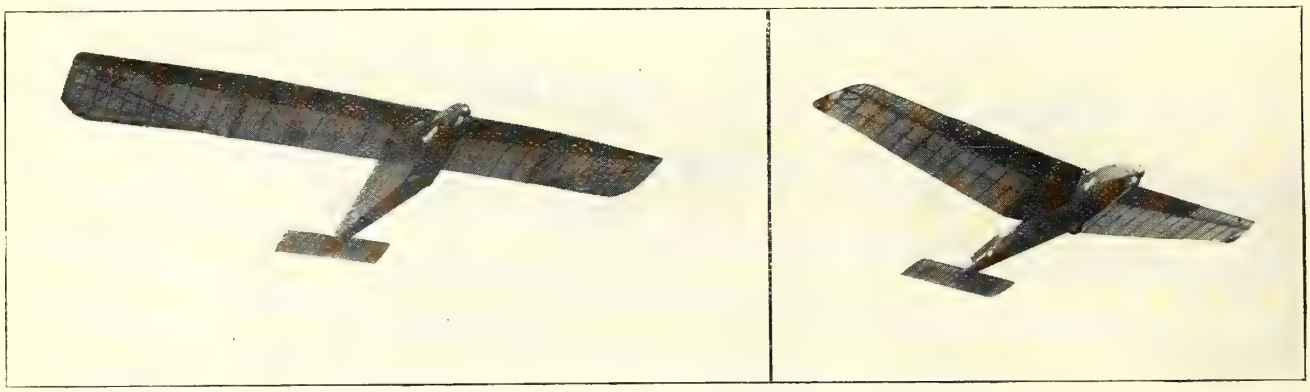
From them we learnt that our arrival was expected by certain of the German technical experts, and that we were invited to call at another hotel after dinner and confer with them. Accordingly we were conducted round the corner and introduced to Prof. Th. von Karman, an aerodynamical scientist of world-wide reputation, to Dipl. Ing. E. von Loessl, and to Herr E. Meyer, who, so far as can be gathered, does about as much test piloting and general flying as is possible to anyone in Germany to-day, and who is an enthusiastic glider.

In their company we sat late into the night discussing soaring and gliding in all its aspects, including the practical side relating to the choice of grounds, the rules drawn up by the Aero Club for the *Daily Mail* prize, as well as the aerodynamic and meteorological questions involved. Prof. von Karman, Ing. Von Loessl, and Herr Meyer all have a good working knowledge of English, Mr. Royse speaks German, and therefore our very limited acquaintance with the German tongue did not prove any serious bar to this discussion.

We remained at Gersfeld until the following Tuesday afternoon. The time was spent variously—in visits to the Wasserkuppe, in discussions on the technique of gliding with various authorities, with debating as to the terms and conditions arranged by the Aero Club for the following British contest, and the possibility of any German entries being forthcoming, and in giving the American team some slight assistance in the unpacking of their glider and its assembly on the hill.



Herr Botsch taking off on the Darmstadt 1922 monoplane. The starting crew may be seen on the right with the starting rope just about to fall clear. Note the range-finder and theodolite in the left foreground, used for measuring distance and altitude.



The two Hannover monoplanes. Left, the "Vampyr." Right, the "Greif." Note the generally cleaned-up appearance of the latter—which is nevertheless the inferior machine.

German Courtesy.

During the whole period of our stay we were treated with the utmost courtesy by all those who were directly concerned in gliding, and by many others.

Railway officials, hotel servants, and casual strangers whom we approached for directions were all patient with our very imperfect German, and gave us every assistance in their power. A German police official, who had occasion to draw out attention to a technical breach of the law concerning the registration of foreigners, treated us not merely with courtesy, but went to some appreciable trouble to help us out of that particular difficulty with every sign of good will. In fact, the only two unpleasant incidents of our visit can be traced, one directly and the other indirectly to British sources.

And the Englishman Abroad.

The first of these arose out of the manners and customs of a certain type of Englishman when travelling in foreign lands. This "gentleman" joined our train at Aachen at about midnight on the outward journey, and found some difficulty in obtaining a seat. Having invaded—and been very properly ejected from—a compartment reserved for officers of the Allied Armies of Occupation, he next attempted to force his company upon a party of English ladies, travelling in a compartment reserved for "Frauen." After his exit from this place he proceeded to walk the corridor, demanding in a loud voice, "Who won the war," and "Why can't I have a seat instead of all these foreigners?"

Now it so happened that I was suffering from an attack of malarial fever, with a temperature up in the region of 102 deg., and mainly on that account had spent large sums in reserving our compartment to Frankfurt. Our fellow-countryman speedily discovered us, and demanded room.

Considering that unless he were induced to remain quiet any of the other passengers on the train might quite justifiably have murdered him, which might have led to international complications, we allowed him a corner on the condition that he remained silent for the rest of our journey, a condition which one is glad to record he fulfilled.

But after this it was obviously impossible to refuse seats to perfectly well-behaved Germans, who would otherwise have had to travel all night sitting on their bags in the corridor, and seven hours of night travelling sitting upright with a temperature is far from pleasant.

A Slight Coolness.

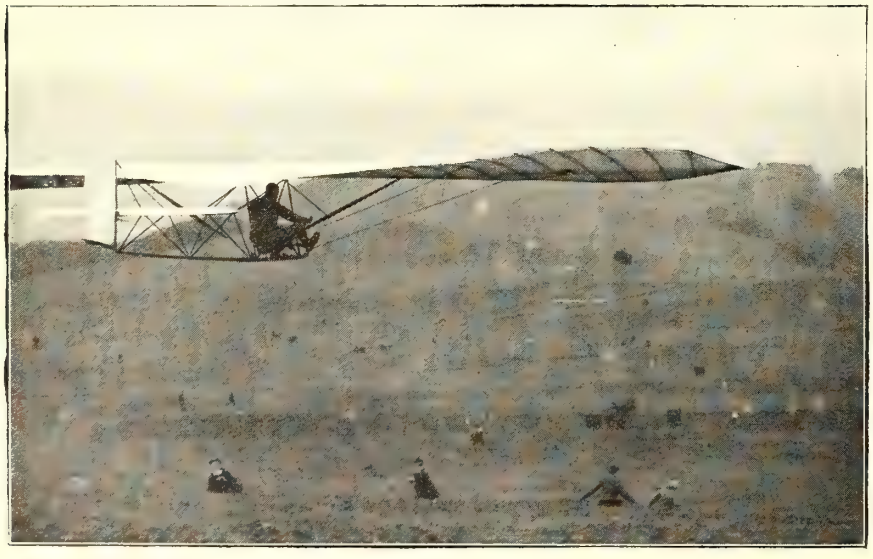
The second unfortunate incident was somewhat more serious. On the first two days of our stay in Gersfeld everything went very well. On Saturday night there were signs of a slight coolness towards us. On Sunday these signs were more marked.

In the morning a fellow-guest in the hotel audibly reproved another gentleman who had given us some lingual assistance for having had any dealings with us and the Americans. Shortly after this we were notified of our technical breach of the police regulations (incidentally we gathered that these regulations were almost invariably disregarded), and that the authorities were coming round to investigate us. Then the Americans were told that even if they took their machine up to the Wasserkuppe they would not be allowed to fly there.

Mr. Royse—who had both on Thursday and on Saturday tried the Espenlaub monoplane—was told that he would not be allowed to do so again, and Major Wright and I, who had negotiated with Herr Espenlaub to the same end, were also told that we were not to be permitted to fly

It was not at all easy to discover the exact cause of the trouble. After some considerable inquiry we found that the matter was largely a personal one. The ground landlord of the Wasserkuppe—the Graf von Waldhausen—was at the time away. His nephew was in residence in the district, and appears to have been a very great friend of a certain Bavarian ex-major, who had been employed during the actual Rhön competition as a commandant of the private police corps who were charged with maintaining order on the Wasserkuppe.

This latter gentleman, his friend the landlord's nephew, and the landlord himself were all, one gathered, of very strongly Nationalistic feelings, and it appears that the major had discussed with his friend the impropriety of permitting ex-enemy aliens to pry into all the secrets of German aeronautical progress. Having agreed upon the subject they proceeded to the Graf von Waldhausen's estate agent, and persuaded the latter to prohibit all flying over the Graf's property in the presence of such ex-enemies.



CONTROLLABILITY.—Freiherr von Freyburg on his Harth-Messerschmitt machine. This type of machine, despite the large number of exposed struts and wires, put up last year's record of 22 minutes.

The special feature of the type is enormously powerful controls — evidenced in the photograph by the colossal warp on the right wing.

An improved 1922 Harth-Messerschmitt machine in which all exposed struts and wires were abolished, but with equally powerful controls, did not give successful results this year.

Incidentally the photograph shows the suitability of the Wasserkuppe for pure gliding. The view is of the south slope—which is not good for soaring.



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How the "Daily Mail" Helped.

It was not until we reached Cologne on the return journey to England that we discovered that the ever-helpful *Daily Mail* had on September 1st published a report that Major Wright, "of the Air Ministry," and myself were in Gersfeld, and that the impression was current in Germany that Major Wright was at Gersfeld on the Air Ministry's behalf, although, in fact, he was there purely in his private capacity. But there is no doubt whatever that this was a main cause of our trouble.

Despite this unfortunate incident, we were treated with perfect courtesy, were given much useful information, and saw quite a good deal of the German machines. We saw only one flight—made by Mr. Royse on the Espenlaub—and we left as soon as possible, because our continual presence seemed likely to lead to difficulties for certain people who had been of very great use to us.

Although, as already mentioned, we saw only one actual flight, our visit was by no means a waste of time. We found that the pilots, designers, and scientists were ready and willing to give us their views and opinions in considerable detail, and certainly we should not have had the opportunities for discussion which actually occurred had there been much flying.

Generally speaking, it seems to be admitted that practically all the German "soaring" is an affair of "up-currents." The possibility of flying over flat ground in a gusty wind is, however, maintained, and it is claimed that in certain cases soaring flight of this type has actually been achieved. It is admitted that the evidence of such flight is somewhat scanty, and that much more research and experiment into this type of flight is necessary before it becomes possible to use this particular form of wind energy for flight.

The Qualities of the Wasserkuppe.

The "Wasserkuppe" has been the scene of the famous soaring flights, and it has been suggested that there is some special quality of this particular hill which accounts for these flights, and that no similar results can be expected unless the physical and meteorological features of the particular place can be duplicated.

This view does not meet with any very great support. The Wasserkuppe is a very excellent gliding hill. The summit is over 3,000 ft. above sea-level, the valleys below it are nearly 1,500 lower. Both the hill slopes on the southern side, and the valley on the more precipitous western side, give ample landing ground. And the Wasserkuppe was chosen for gliding competitions even before the war. The big flights have been made there because the competitions have always been held there.

In fact the hill is not ideal for soaring in up-currents. Only the precipitous western slope gives really good conditions, and that only in a wind with a strong westerly component—a wind which is not apparently particularly frequent. The slope to the south is fairly gentle, but does provide an up-current of fair strength in a suitable wind. But it is partly blanketed by a ridge only about 120 metres lower than the summit less than 1½ miles away, and, in consequence, there is not enough room to manœuvre and remain in the narrow region of this up-current. The north slope offers no reasonable landing or take-off opportunities.

Soaring over Sand Hills.

Soaring flight has been accomplished elsewhere in Germany. Particularly interesting is the fact that it is claimed that flights of appreciable duration have been made over sand-dunes of 60 ft. height on the coast. Altogether, the evidence is fairly strong that given equally good machines and equally good piloting soaring is possible in many places in England, and that in particular the South Downs offer very excellent opportunities for experimental and sporting purposes.

So far as piloting is concerned, there can be no doubt that we have in this country all the necessary ability, and that a little experience would provide all that is needed in this direction.

Machines for Soaring.

As to machines the matter is less simple. There were 53 entrants for the Rhön competition. It is difficult to draw a definite line between "soaring" and plain gliding, but of the 53 entries only about half-a-dozen showed certainly their ability to do more than just glide. The machines which made the best performances show no signs of freakishness—they are, without exception, extremely clean and straightforward designs—mostly extremely well built. So far as this year is concerned, the cantilever monoplane has swept all before it. But there is a good deal of evidence that there is as yet no certainty as to the design of such machines at the present moment.

The original Hannover monoplane of last year, designed by Dr. Prof. Pröll and Prof. Madelung, both of Hannover, the latter now in the United States, put up a very fine flight of 15¾ mins. last year. For this year's competition it was somewhat modified. The original ailerons were removed, and in their place flexible ribs were introduced, which were warped for lateral control. This appears to have been the main alteration, and this machine, christened "Vampyr," was used by Martens and Hentzen on the one-hour, two-hour, and three-hour flights, which have become so famous.

How "Cleaning up" Spoilt a Machine.

In addition to the modified "Vampyr," a second Hannover monoplane was designed this year by Prof. Pröll. In its main lines it followed the original. The body instead of being of rectangular section and of angular side elevation was made of oval section plywood covered, and of apparently much better shape than was the original.

The wings, instead of being of parallel section, with tapered tips and square ends, were tapered throughout, and were given raked tips. The pilot was more completely enclosed, and altogether the new machine—known as the "Greif"—shows that everything that could be done to clean the machine up had been done.

The "Greif" is a good machine—probably the second best at Gersfeld this year—but it is not as good as the "Vampyr." Why, nobody knows exactly, but that is the admitted fact.

The Darmstadt Technical High School team entered two machines this year. Both are of the same general type as the Hannover. One of them has no external wing bracing, the other has centre section struts running from the fuselage bottom to the wings. By ordinary methods of estimating performances these struts should have a negligible effect on the performance. In fact, the strutless machine is good—the strutted one is relatively poor.

On the other hand, the Harth-Messerschmitt glider of last year was a dirty machine, with masses of exposed struts and wires. Yet it put up last year's record of 22 mins., and one or two similar machines this year did quite fair flying.

A Harth-Messerschmitt of greatly improved type, with a beautifully clean boat-built body and no exposed struts, built for this year, failed entirely to perform, and, as a matter of fact, crashed rather badly.

A Machine that is Improved by Weight.

Then there is the case of Mynheer Fokker's two-seater glider. This is merely a very nice box-kite type of affair, extremely lightly loaded. It does not soar; it glides very slowly and fairly finely. It happens to glide very much better with a passenger than it does without. It is not merely a question of control in bumpy winds—it has apparently an appreciably slower descent with two up than with one.

From which instances one may fairly infer that the design of really good gliders is not to be undertaken lightheartedly. There are obviously many factors of an unexpected nature which are of importance, and in this country the experience necessary to produce a machine equal to the best of the Germans is at present non-existent. On the other hand, it is comforting to recognise that with all their experience the Germans have evidently still many lessons to learn.

Although it is perfectly true that all the machines which have done really well in the competitions are plain straightforward monoplanes, it is by no means certain that such machines represent the ultimate type of soaring machines. For work in plain up-currents no doubt the ideal machine is a plain, reasonably stable, but controllable glider, with the lowest possible rate of descent in still air. The rate of descent is reduced the better the gliding angle and the lower the gliding speed, and for such work machines of the Hannover type are very evidently extremely satisfactory.

Soaring in Gusts.

But the German experts are not satisfied with this. They hope to be able eventually to soar over flat country in gusty winds with fair certainty.

Theoretically, this is perfectly possible, and attempts are now in hand to put theory into practice, working along the lines of the "Koller-Betz" theory.

A gusty wind cannot be uniformly horizontal. It must alternatively have an upward and a downward component. During the upward phase an efficient glider at an efficient angle of attack can soar—that is to say, the force on the wings is inclined forward of the vertical, and so provides both lift and traction. During the downward phase, if the glider is kept at an efficient angle the force on the wings is inclined backward, thus giving lift and resistance. But with an efficient aerofoil the backward component in the down-current phase is less than the forward component during the up-current phase, and, therefore, in a regularly fluctuating wind a machine which continually adjusts itself to changes of wind and keeps at the best angle of incidence will have an average resistance which is negative—that is,

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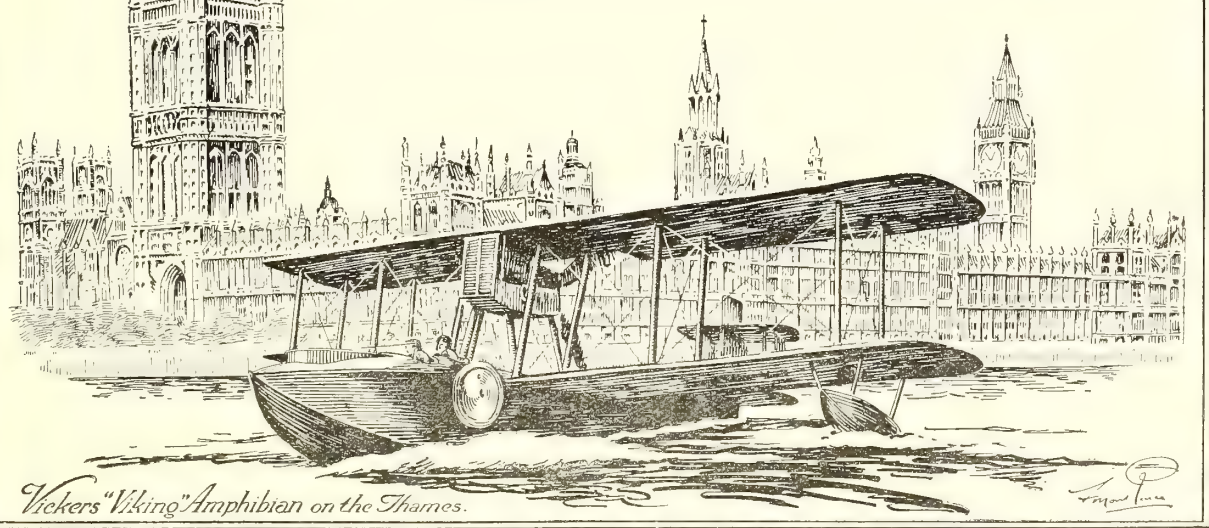
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Vickers "Viking" Amphibian on the Thames.

will tend to make way into the wind. And the effect has only to be sufficiently strong to give level or upward flight.

Flapping the Wind Instead of the Wings.

The general theory has been checked in the wind tunnel by Dr. Betz, of Göttingen. A sort of venetian blind was fitted ahead of a model. The blind laths were flapped up and down, producing alternate up and down air currents, and the model showed a negative resistance—that is, tried to move against the wind. In fact, this is precisely similar to the phenomenon of the flight by wing flapping. The wind itself does the up and down flapping; the wing has only to change its incidence in the correct manner to produce precisely the same forces as are produced in flapping flight.

Some attempts at gust soaring have certainly been made. Prof. Klemperer, of Aachen, has certainly tried it, and believes that he has succeeded. His method, one understands, is to use an accelerometer to indicate gusts, and to use elevators in the ordinary way to keep the incidence of the machine as nearly steady as possible. The method has very obvious drawbacks, and attempts are now being made to produce machines which will automatically maintain a constant incidence.

One very interesting example of this type was designed by Ing. E. von Loessl, built by the Caspar Werke, and flown for the first time by Herr E. Meyer on Thursday, August 31st. The conditions were unfavourable, and the flight was inconclusive, except as evidence that the machine flies excellently.

This machine is normal except in regard to the wing mounting. The rear spar is pivoted at the fuselage, and the pivots are supported on helical springs, which allows the back spar to move up and down under the influence of varying loads due to gusts. It is claimed that in this way the angle of attack of the wing will remain sensibly constant for changes in the vertical wind component. The front spars are coupled to the control lever, and can be raised or lowered, either together for elevator control, or in opposite senses for lateral control. The tail is entirely fixed, except for the rudder.

As mentioned, the tests so far made are inconclusive, but it is certain that the machine flies excellently, and the pilot reports that the wings do respond automatically to gusts, in that in a bump which would cause a normal machine to put its nose up, this machine keeps its body horizontal, and changing the wing incidence only.

(To be continued.)

THE TIRRENO CUP.

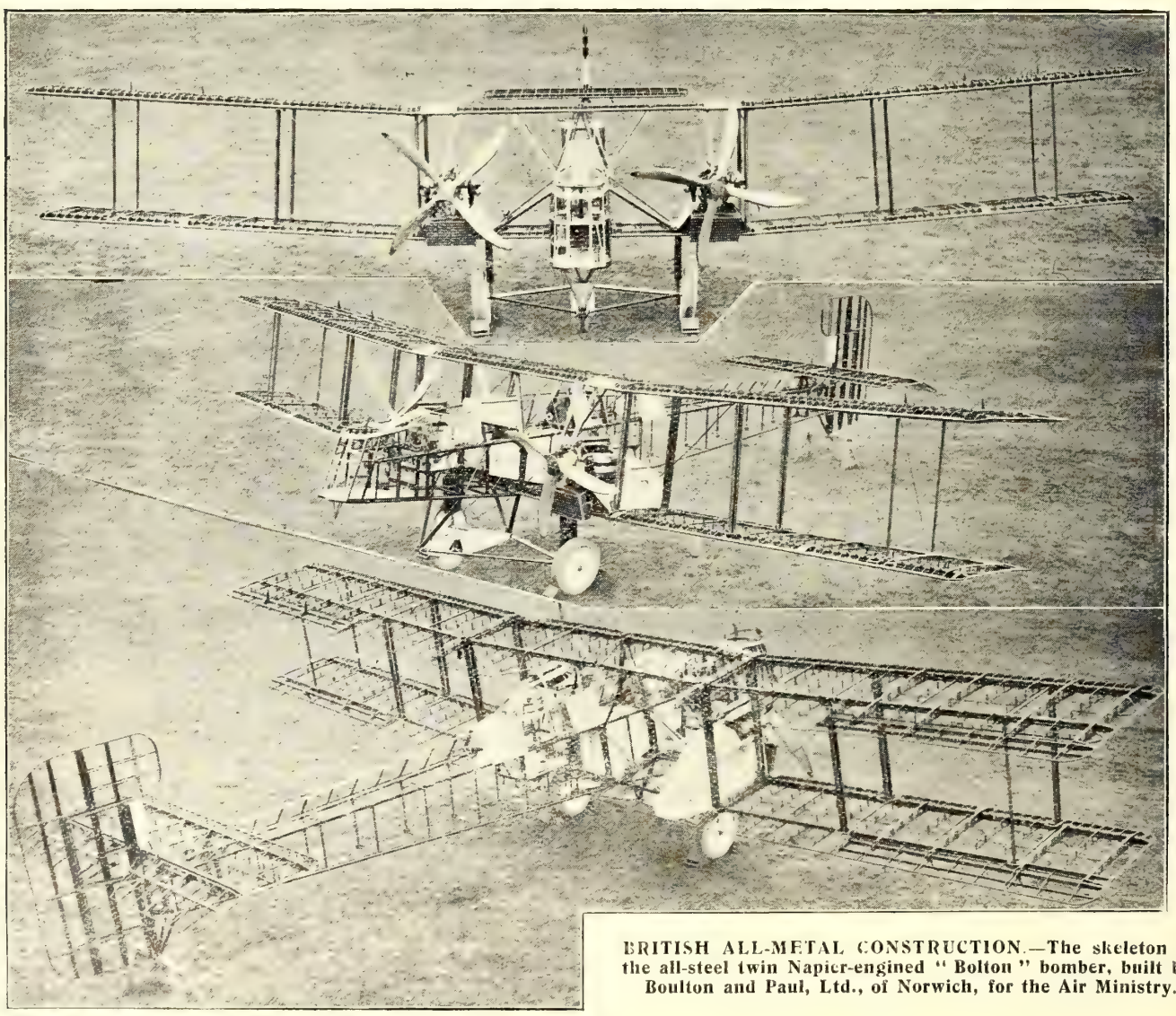
Those who believe the Germans to be the greatest people in the world and love or fear them accordingly will be moved by the practical demonstration of this belief given by Herrn Zimmermann and Eichler who recently flew two Junkers (185 h.p. B.M.W. engines) from Dessau to Naples with an intermediate landing at Iesi to take part in the Italian Government's Tirreno Cup Seaplane Competition, which with the whole proceeds they carried home to Germany.

Zimmermann—not he of the Austrian Royalties flight by-the-by—flew the 2,000 kilometres in 17 hrs. 8 mins., the only other competitor towards the end being Eichler. It is true that the Slow Tests—80 kil. per hour—were at the entrants' desire postponed till several days after the race; when, however, the day being windless, they were accomplished more by acrobatic than dynamic efficiency and with no margins.

The machines wore wheels for the over-Alpine part of the stunt, anent which diplomatic intervention re Treaty obligations nearly quashed the whole event. It is presumed that the machines showed a forbidden ceiling and the engines a rather too elastic power curve.—T. S. H.

The Tyrrhenian Cup, or the "Gran Coppa del Tirreno," presented by the Italian Government was for a race over the circuit Naples—Capri—CapoVatican—Milazzo—Palermo—Terrasini—Naples, flown three times, a total of 2,000 km.

Four machines lined up for the start, namely, the two Junkers mentioned above and two Savoia flying-boats flown by Sig. De Sio and Lieut. Maddalena. The latter failed to get away owing to radiator trouble and the former retired at Palermo on the first circuit. The prescribed minimum speed of 80 km.h. was not attained, Herr Zimmermann's best being 82 km.p.h. and Herr Eichler's 87 k.m.p.h.—B.



BRITISH ALL-METAL CONSTRUCTION.—The skeleton of the all-steel twin Napier-engined "Bolton" bomber, built by Boulton and Paul, Ltd., of Norwich, for the Air Ministry.

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To neglect to take reasonable precautions for safety is more than foolhardy—it is criminal.

"One of the great factors in the next war will obviously be aircraft."—Marshal Foch, January 11th, 1921.

An Industrial Aeroplane Service is a Potential War Force.

At a Meeting of the Supreme Council held at the Quay d'Orsay, Paris, March, 1919, the following question and answer were propounded:

QUESTION: Can civil aeroplanes and airships be transformed easily into weapons of war?

ANSWER: Unanimously; Yes, very easily and very quickly.

"An aeroplane which can carry a certain number of passengers a certain distance at a certain speed is capable of carrying an equivalant weight in bombs at the same speed."—Brigadier-General P. R. C. Groves in "The Times."

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(Continued from page 224.)

agree with the suggestion made in this paper that in any other form of sport Mr. Barnard would have been stopped at Birmingham and would have been told that either he might go back and start afresh, as in the case of a yacht which crosses the starting line before the gun is fired, or that he must consider himself out of the race.

Since then it has come to light that at the Bristol control, where it was evident that everything depended on a matter of seconds, Mr. Barnard sawed off his wing-tip skids and part of his tail skid so as to reduce the head resistance of the machine and give a few seconds at any rate of less time over the remaining 120 miles of the course. One gathers that a meeting of (presumably) the Stewards of the Aero Club was held last week to decide whether Mr. Barnard should be disqualified for thus altering his machine in the course of the race. The officials who dealt with the matter decided not to disqualify him.

In this decision one is inclined to agree with the officials concerned. The old D.H.4a with its Rolls-Royce "Eagle" engine which won the race was not in fact handicapped on its accurately measured performance in previous races. It was merely handicapped on a sort of general idea of the speed of that particular type of machine. If Mr. Barnard had appeared on the starting line at Croydon minus his wing-tip skids and part of his tail-skid it is very doubtful whether anybody would have noticed that they had been removed. Moreover one is under the impression that wing-tip skids were not a standard fitting on the original D.H.4as, but that they were put on this particular machine when it was made into a passenger-carrier because the added weight of the passengers and the cabin roof made the machine more liable to roll over onto a wing tip when landing or starting.

It is quite possible that the removal of these obstructions did save Mr. Barnard an extra minute in his time between Bristol and Croydon, but as they were not specially considered by the handicappers in allotting their handicap and as they were not a standard fitting on the wartime D.H.4, it would certainly have been straining at a gnat and swallowing a camel to have disqualified him on the wing-skid point and to have allowed him to get away with the unforgivable crime (in the sporting sense) of beating the flag.

Of course beating the flag is only unforgivable from the point of view of the owner of the aeroplane, horse, motor car, boat or whatnot, and of those who have backed it. The ordinary public does not really care two hoots about the matter. For this reason if Mr. Barnard had been disqualified at the end of the first stage the ordinary public would not have had any idea he was likely to be the winner and would merely have put the incident down as a silly mistake on the part of the pilot and he would simply have been regarded as another "also ran." Naturally after he had been allowed to go on to Glasgow and had showed that he was almost bound to win, it was quite impossible for the Aero Club officials to disqualify him without making themselves look more ridiculous than their Creator intended them to be.

It is commonly believed among those who aviate that His Majesty the King has already expressed his intention of presenting another Cup for future competitions. One gathers that no such intention has been officially expressed. It is quite possible that after learning of the way in which the Royal Aero Club officials mismanaged the affair the King may not be inclined to present another Cup.

One therefore ventures to suggest that seeing that there is so much dispute as to the rightful ownership of the Cup it would be a very graceful act on Sir Samuel Instone's part if he were to present this first King's Cup to the Royal Aero Club to be put up as a perpetual challenge cup year by year. In this way the King's Cup Race might be perpetuated.—C. G. G.

THE RETORT DISCOURTEOUS.

The following letter has been received :—

Sir,—I wish to raise one or two points in connection with your unusually offensive article on the King's Cup Race.

Firstly,—many of my friends have pointed out the distressingly close proximity of my name to the heading, "Relics of the Past."

Secondly,—I should like to make it quite clear that I should not have taken passengers if there had been any danger of my passing out owing to a blood clot.

Thirdly,—I flew an antique, which by-the-way performed extremely well considering that someone carelessly poured in 265 gallons (about a ton) of petrol without my noticing it, because it was the only machine available at short notice.

Fourthly,—I did not retire from the race. My compass-card fell off and said "South," so I had to follow the only machine I could find which was slower than mine, namely, Mr. Kenworthy's. Incidentally there were moments on the way from Newcastle to Glasgow when I wished that the compass had been right.

Fifthly,—I only heard a few days before the race from Mr. Churchill, who, as you may have heard, is a comparatively busy man, that he wished to enter, and knowing that the Blackburn mechanics with whom I have worked before would do their damnedest I wired for the best machine the company had to be got ready.

(Signed) Spenser D. A. Grey.

[" What I have said I have said, I withdraw nothing I regret nothing," is one reply to the foregoing. The other is, " Having said what I wanted to say, I have much pleasure in withdrawing it." Colonel Grey can take his choice, they are both good phrases. One is sorry to learn on his authority that the " Kangaroo " was the best machine the Blackburn Co. had. One was under the impression that they were building some rather modern aeroplanes for Japan and for the R.A.F., one of which might have been camouflaged for this race. But perhaps his wire did not produce quite the desired effect. However he is to be congratulated on a very fine personal performance, especially considering the risk he took.—C. G. G.

THE PRESS AND THE INDIAN SCANDAL

The *Daily Telegraph's* Calcutta correspondent, telegraphing on September 17th, says :—

" I am informed from a reliable source that Sir John Salmond, as the result of his tour on the frontier, has made drastic recommendations to the Government regarding Air Force equipment, which will shortly be placed before the Legislature. The truth of the recent revelations made at home as to the circumstances of various crashes on the frontier is practically admitted in the statements made by Sir John Salmond to interviewers since the submission of his report. He declared :

" ' During the past year or two, for reasons of so-called economy, the force has been absolutely starved. Of the six squadrons, totalling 70 aeroplanes, in India, not more than 10 planes are at present able to take the air. This is the result of the embargo placed by the Indian Government on orders for urgently needed spares from home.'

" These are regarded as admissions which confirm the view held here that a considerable number of the lives lost in recent operations on the frontier could easily have been spared. [As a matter of fact, only two lives have been lost in the recent operations. But even so, it is rather surprising to find an eminently respectable paper like the *Telegraph* saying that these " could easily have been spared."—Ed.]

" With regard to the nature of the proposals embodied in his report, Sir John Salmond was reticent, ' but they include suggestions for a more effective and less costly policing of the frontier by the Air Force.' Perusal of the full report will probably reveal that the expression ' less costly ' does not refer to cash, but to human life.

" Reports from the frontier indicate that as the result of the publicity given to the scandal, improvements are already in progress, and that for similar reasons the remedies demanded by Sir John Salmond are not likely to be delayed."

[The last paragraph is arrant nonsense. The publicity only began a few weeks ago. Sir John Salmond left England at the end of May to wrestle in spirit with the Indian Government over a scandal about which the Air Ministry had been arguing with the India Office for months before the question of sending Sir John to India was put forward. The improvements were already in progress before the Press ever discovered that there was a scandal at all.—Ed.]

PERSONAL NOTICES.

Deaths.

BARRETT.—On September 10th, at Felixstowe, Phyllis, wife of Capt. Barrett, A.F.C., R.A.F.

POTTER.—The notice referring to the death of this Officer should read August 23rd.

Engagements.

GRICE—LANGDON.—The marriage arranged between F/O. Richard Grice, D.F.C., and Miss Sheila Langdon will take place at Port Said on October 5th.

HUNTER—STOODLEY.—The marriage arranged between F/Lt. P. B. Hunter, R.A.F., younger son of Mr. and Mrs. Percy Hunter, of Teddington, and Evelyn Mary, second daughter of the late Mr. E. E. Stoodley, C.B., and Mrs. Stoodley, of Teddington, will take place at Alexandria early in November.

Marriage

POLE—MEREDITH.—On September 12th, at Warlingham, Edmund George Pole, late R.A.F., only son of Mr. and Mrs. George Pole, of "Westfield," Caterham, Surrey, to Kathleen, only daughter of Mr. and Mrs. Alfred Meredith, of Caerwys, Warlingham, Surrey.

Births.

CHURCHILL.—On September 15th, at 2, Sussex Square, Mrs. Winston Churchill—a daughter.

DEANS.—On September 14th, at 93, Westgate, Grantham, to Grace, the wife of F/Lt. E. E. Deans, D.S.C., R.A.F.—a daughter.

HEAL.—On September 12th, at the residence of her parents, 12, Chatsworth Road, Brondesbury, N.W.2, Margaret Enid, wife of F/Lt. G. Freeman Heal, R.A.F. Med. Service—a daughter.

MERTON.—On September 11th, at Slopes, Woldingham, Surrey, to Mary, wife of Maj. Gerald Merton, M.C., late R.A.F.—a daughter.

SOWREY.—On September 13th, at St. Clements, Grantham, to Margarita Beatrice, wife of S/Ldr. F. Sowrey, D.S.O., M.C., A.F.C., R.A.F.—a son.

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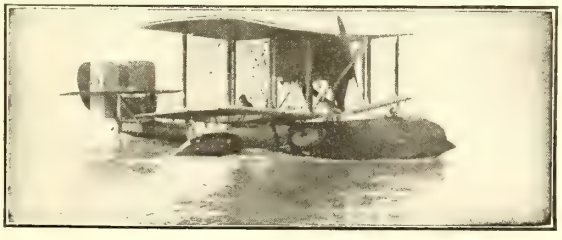
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CONTINENTAL ARRIVALS AND DEPARTURES.

ABBREVIATIONS:—A.D.—Aircraft Disposal Co. B.A. Berkshire Aviation Co. B.C.—Bristol Aeroplane Co. C.A.—Department of Civil Aviation. D.A.—Daimler Airway. D.H.—De Havilland Aircraft Co. G.E.—Compagnie des Grands Express Aeriens. H.P.—Handley Page Transport Ltd. I.L.—Instone Air Line. K.L.—Koninklijke Luchtvaart Maatschappij. L.A.—Leatherhead Aviation Services. M.A.—Messageries Aeriennes. M.W.—Marconi Wireless Telegraph Co. Ltd. P.O.—Privately owned. W.A.—Westland Aircraft. S.F.—Surrey Flying Services.

ANALYSIS OF FIGURES

FOR WEEK ENDING SEPT. 17th.

Number of trips made during week.—I.L. 24, H.P. 18, D.A. 27, M.A. 28, G.E. 10, K.L. 11, D.H. 2, P.O. 1.

Number of passengers carried.—I.L. 116, H.P. 118, D.A. 78, M.A. 53, G.E. 30, K.L. 12, D.H. 4, P.O. 0.

Total number of trips by British machines: 72, carrying 316 passengers.

Total number of trips by foreign machines: 49, carrying 95 passengers.

Trips per day—Monday, 22; Tuesday, 21; Wednesday, 20; Thursday, 16; Friday, 17; Saturday, 22; Sunday, 3.

STATISTICS.

Machines, 121; Passengers, 411; Crews, 215; Total Personnel, 626.

Corresponding week last year:—

Machines, 96; Passengers, 224; Crews, 120; Total Personnel, 344.

Corresponding week, 1920:—

Machines, 115; Passengers, 285; Crews, 142, Total Personnel, 427.

NOTES OF THE WEEK.

On Tuesday, for the Aircraft Disposal Co., Mr. Perry was testing a D.H.9, a Bristol Fighter, and an Avro, and Captain Stocken was also testing an Avro. The following day Mr. Perry was up on a Rolls D.H.9a, and later on a "Snipe." The next day Mr. Piercey tested an Avro, and in the afternoon there was a demonstration to a gathering of delegates, representatives of various nations. Captain Stocken was doing some more of his pretty slow flying on his "Tinsyde," towards the end of which his throttle stuck open, so he had to land by the switch. After this he took up a D.H.9 for a further demonstration.

Mr. Piercey came out on the Parnall "Panther," which has not been seen since Mr. Muir flew it in the Easter races. It is now painted an ordinary buff colour instead of with the fearsome jazz sea-serpent effect. Mr. Piercey also took up an S.E.5a and his King's Cup D.H.9, and Mr. Perry had up his King's Cup D.H.9a, also a "Snipe" and an Avro.

On Friday Captain Stocken was up on an Avro, and on Saturday Mr. Perry and Mr. Piercey left for Brussels on a Bristol and a D.H.9, intending to return later on a D.H.9a and a "Snipe," which had been over in Brussels for demonstration purposes. Later in the day Captain Stocken left for Dublin on a Bristol, going by way of Shotwick.

Preparations are now proceeding for the parting of the airways. Major Greer and Mr. Handover have gone over to Cologne to prepare for the extension of the Instone Line on Monday week. Mr. Handover is to be the Cologne manager, and Mr. Roche, who has been the Paris manager for the past year will be in charge of the Brussels terminal.

Mr. George Powell brought a "Vulcan" from Brooklands last week, and is also fetching from Brussels the "Vulcan" which had its nose damaged by taking off from the rough part of that aerodrome. One of the firm's Westlands is being rebuilt by the Aircraft Disposal Company.

Mr. Savage of Handley Page Transport, tells one that the W.8bs are to be converted to carry 16 passengers. It is probable that the alteration will be made by putting an extra bay in the nose, and extending back into the luggage compartment. The only difficulty about that scheme would be that another place would have to be found to carry the freight. This might possibly be done by raising the floor of the cabin, and making a space there, though the difficulty of disposing of large cabin trunks would still remain unsolved.

Mr. Larry Carter came back from Paris on Saturday on the 0/400 in appallingly bumpy weather against a head wind. He had not flown this type actually over the route before, and consequently he spent Sunday in bed.

The early morning Daimler machine now leaves at dawn instead of 05.30 hours. This means nowadays about 06.00 hours, and even then the cabin lights and cock-pit lights have to be turned on.

Mr. Hinchliffe on Friday left for Rotterdam on a Daimler D.H.34 to give demonstrations in connection with the I.C.A.R. He was accompanied by Colonel Searle and the Daimler Airway's general manager. They are now going on with Mr. Hinchliffe to Berlin to reconnoitre the new Daimler route. Mr. F. T. Courtney now flies as spare pilot for the Daimler Airway.

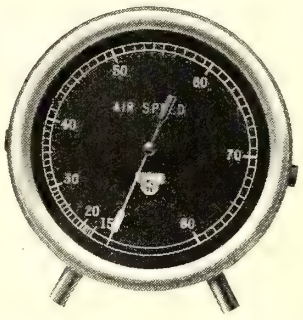
On Tuesday Mr. Cockerell on a Vickers' "Vulcan" left for Rotterdam to give demonstrations, and a day or so previously Mr. Alan Cobham took over General Brancker to the meeting in a D.H.9c.

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NO LANDING FEES.

On August 7th, for the second time in succession, B.T.H. Magnetos helped Mr. J. H. James to secure the Aerial Derby Trophy for First Place.

His machine — "Mars I" — The Gloucestershire Aircraft Company's biplane, popularly known as the "Bamel," has a 450 H.P. Napier Lion engine, equipped with a **B.T.H. A.V. 12 Magneto** and this year averaged 179½ m.p.h., being 16 m.p.h. better than last year.

B.T.H. Magneto Successes.

Second Place was gained by Mr. R. A. de H. Haig, flying a Bristol Bullet machine, equipped with a 440 H.P. Bristol Jupiter engine and a **B.T.H. A.V. 9 Magneto.**

Third Place was secured by Mr. F. P. Raynham, in a Martinsyde F. 6 machine, equipped with a 200 H.P. Wolseley Viper engine and a **B.T.H. A.V. 8 Magneto.**

B.T.H. Magnetos were also fitted to the machines gaining **Second, Third** and **Fourth** places in the 1922 **Aerial Derby Handicap** and to the machines gaining **First, Second** and **Third** places in the **August Open Handicap.**

This is the fourth successive Aerial Derby in which B.T.H. Magnetos have been fitted to machines gaining the First and Second places!

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B T-H

The C.M.A. are getting surprising results out of their London-Marseilles service. M. Grosfils, their London manager, says that the machines are running right up to time on this long trip, which surprised even him.

The K.L.M. Service have now put on their "If Winter Comes" times, and run one machine a day in each direction, leaving Croydon at 10.00 hours and Amsterdam at 14.00 hours. This Freedom of two machines a day enables the firm to give all machines a winter overhaul.

The Napier Bristol 10-seater has now returned to the aerodrome, having been well overhauled at Bristol. It is painted white, like the Jupiter machine, and is being kept as a stand-by with the other D.H.34 for any firm that requires another machine.

On Sunday an individual appeared at the aerodrome, and went to the Basil Foster inquiry office to ask if he could have a machine to take him to Winnipeg, for which trip he said he was willing to pay as much as £6.

He was told that the only person who specialised in such long trips was Major Wilfred Blake but the passenger would have to wait as Major Blake was still in India.

Mr. Muir and Mr. Youell were taking passengers in the Avro on Saturday. Mr. Youell told one that the bumps were appalling.

Anyone who wants to get hold of some D.H.9s cheap for air-taxi work or joy-rides should get in touch with Major Foot. Some time ago it may be remembered the Aircraft Disposal Company prepared three 3-seater D.H.9s which were described in this paper as painted white and "sumshusly" appointed. These machines Major Foot delivered to a client in Switzerland. They have been flying for about six months but for various personal reasons the owner now desires to sell them.

Last week a gang of labourers started to cut away the very bad ridge which runs from north to south right across the aerodrome in front of the Aircraft Disposal Company's premises. This ridge in the past two and a half years has been responsible for numerous bad-looking landings, and has caused many casualties among tail-skids. When it is removed the tail-skid industry will probably have to reduce itself by about half.—G. D.

THE DE HAVILLAND FLYING SCHOOL.

For some time past the De Havilland Hire Service have been operating a flying school at Stag Lane aerodrome. About a dozen pupils are now receiving instruction. The machine used for instruction to beginners is the well-known D.H.6 which was used with great success by the Royal Air Force for elementary training. The ease of control and remarkably low stalling speed of this machine makes it particularly suitable for training.

Concurrently with their flying instruction pupils receive careful and thorough ground instruction.

For dual control flying instruction the inclusive charge is at the rate of £6 per flying hour. When the pupil is flying solo this rate is reduced to £4 10s. per hour, but for solo flying it is necessary for the pupil to bear or insure against all risk of damage to the machine. Pupils must therefore either (a) Sign an undertaking to the effect that they will be responsible for any damage caused to the machine (valued at £250). Adequate proof must be furnished of ability to meet this expense. (b) Where pupils so desire it, as an alternative to taking the risk themselves, the Company is prepared to relieve them from liability by means of the following insurance scheme :—

1. Pupils doing solo are to pay £5 per hour additional to the normal charge for the hire of the machine. If no damage whatever is done during 10 hours' flying, or at the end of the time when the pupil ceases to do solo work, a return of £2 per hour will be made to the pupil.

2. The pupil shall bear the first £10 of any damage caused to the machine.

3. The above covers risk of damage to the machine only and pupils must make their own arrangements should they desire to cover their liability for third party risks.

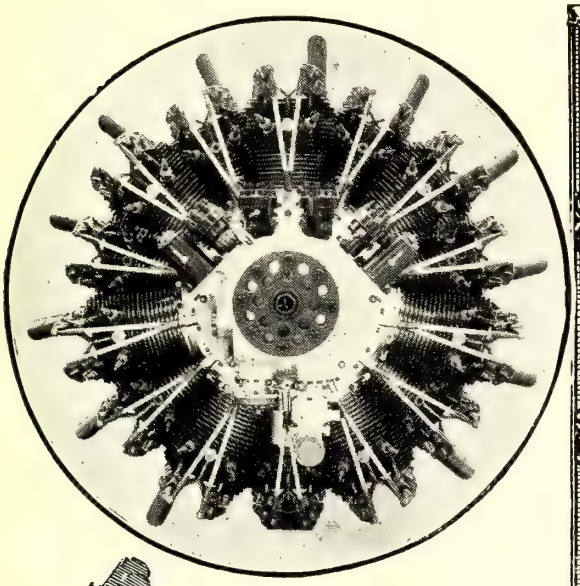
For advanced training D.H.9 machines are used and the charge for dual control flying instruction on this type is £8 per hour. For solo flying on the D.H.9 machine the rate is £7 per hour plus the responsibility for damage to the machine (valued at £500).

This training should be sufficient to secure for a pupil an A or B Air Ministry licence.

One gathers that Capt. de Havilland himself has recently been doing some interesting soaring experiments on a D.H.6.

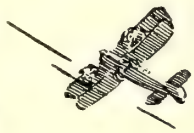
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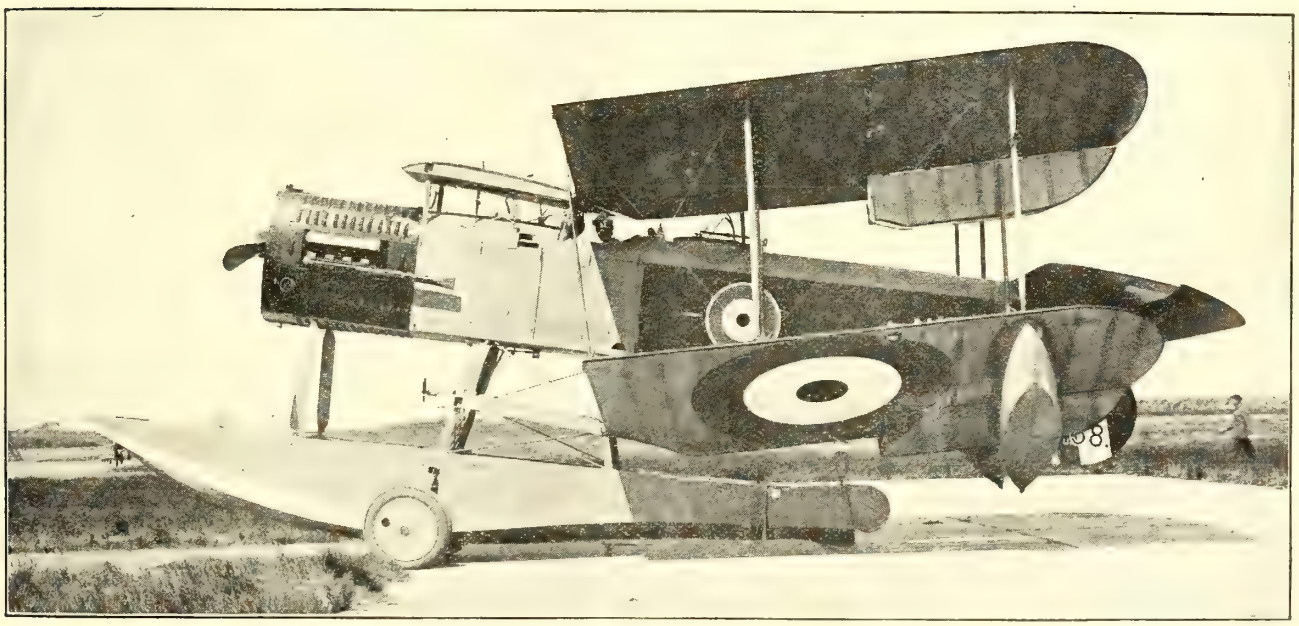
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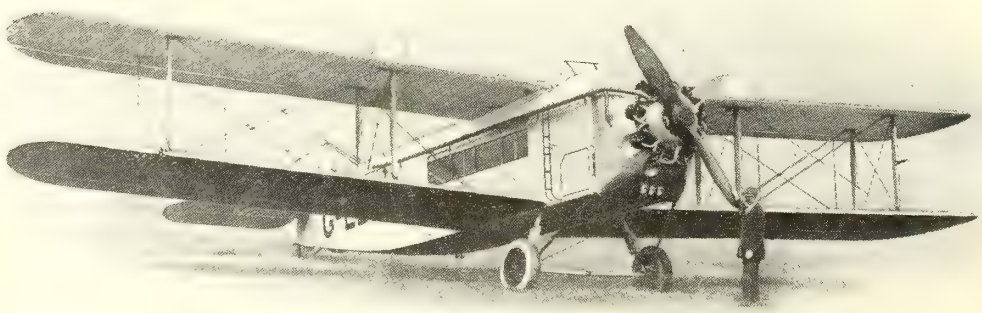


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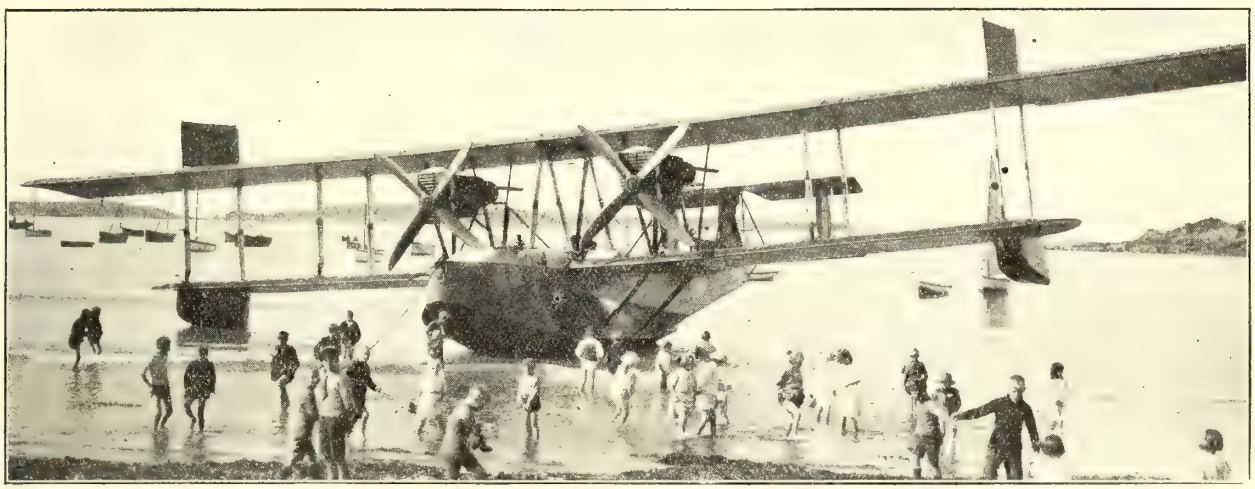
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WEDNESDAY, SEPT. 27, 1922.

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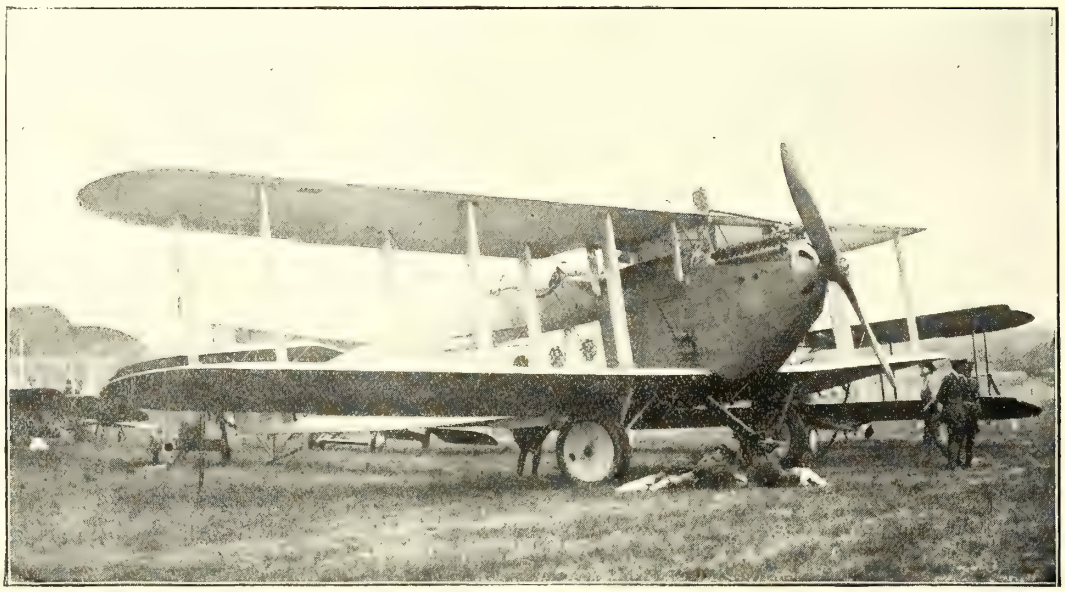
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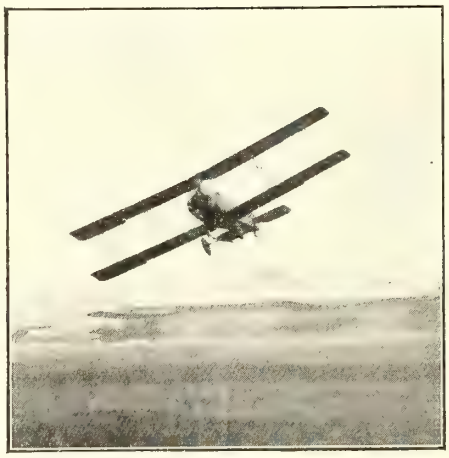


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ON COMMERCIAL AVIATION.

Arrangements having been completed for what has been called "The parting of the Airways" whereby the Daimler Airway is to run via Amsterdam ultimately to Berlin, the Instone Airline via Brussels and Cologne apparently to Prag and Palestine, and Handley Page Transport, Ltd., via Paris with intentions on Switzerland and the Riviera, and possible extensions to Malta and Egypt, this seems an apposite moment at which to discuss the present and future of Commercial Aviation.

Whether this granting of monopolies to three air lines is better for the ultimate development of civil aviation than would be continued competition on the London-Paris route one is not very sure. It can however be said in favour of the new arrangement that if a Government subsidy has to be given then it is better to expend it on developing new routes than in merely supporting competition between our own three air lines on one route. By giving each a monopoly of the subsidy on one route it gives each a chance of competing with foreign machines on these routes.

The Result of Reliability.

Judging by the experience of our shipping lines it seems that the British air line on each route will get most of whatever business is going. In fact it has been proved already on the London-Paris route that people of all nationalities prefer to travel by British aeroplanes whenever possible. Which is only what is to be expected. We in England still hold unchallenged our reputation for solidity and reliability.

One remembers that when our terrifying system of airworthiness certificates and pilots' certificates and ground engineers' certificates was introduced and everybody concerned with Civil Aviation was bleating about the tyranny of the Air Ministry and the interference of the Department of Civil Aviation with private enterprise and so forth, an intelligent Frenchman said, "Ah you English! You are so clever and you pretend to be so foolish. You complain of your Air Ministry, but I see that in a few years your airworthiness certificates and your licensed pilots and engineers will be like the A.1 at Lloyd's of the shipping firms. We in France pay more for our goods to be shipped in vessels with English certificates because the insurance is so much less. And in the same way we shall in some years always travel by your English air lines because we have the English Government's guarantee that they are safe."

It hardly seemed likely then that his words would begin to come true so soon. But it has been evident all this year that the air transport business is working out in the direction which he indicated. And now it is very likely that the high reputation for reliability which has been won by the British air lines, plus the help of the Government subsidy, will enable them to capture whatever business is to be had along the routes chosen. Whether that business will be enough to enable the lines to pay their way still remains to be proved.

The Handley Page Route.

For the immediate present it seems that Handley Page Transport, Ltd., have the best chance of success. Being the oldest of the British air lines and running on the oldest route they should certainly get enough business to fill all the machines they have and several others besides. The W.8s and W.8bs, with their twin Napier and Rolls-Royce engines are inherently quite the most reliable aircraft on an air route in the world. By sheer excellence of organisation and perfection of engineering supervision a line using single-engined machines, as the Daimler Airway does, may achieve as high a percentage of runs without forced landing, or even higher, but when one is crossing the Channel or flying over rough country there is always a solid satisfaction in knowing that if one engine does stop there is still another which is able to hold the machine in the air till a decent landing place is reached. One knows that this has long been a most valuable factor in bringing business to Handley Page Transport, Ltd.

But whether the London-Paris route is likely to be the most valuable in the end is another question. In the first place our actual trade with France is comparatively small and Paris is not on the line to any country with which we do big trade, or are likely to do big trade. Therefore the majority of passengers on the London-Paris line are more likely to be occasional joy-riders than regular customers who use the line for business purposes. Ever since the line opened a very high percentage of the passengers have been wealthy North or South Americans who have flown across the Channel just to be able to say they have done it. Still Mr. Handley Page is one of the most far-sighted and level-headed business men in this country and when he finds that an air line can be made to pay its way without a subsidy it is certain that Handley Page Transport, Ltd., will branch out in other directions.

Also one still believes that in the Handley Page slotted wing when perfected lies the key to success in unsubsidised and truly commercial aviation. For all that has been heard of it for almost a year past the slotted wing might have been dead and buried and forgotten, but one gathers that high-browed scientists are still at work on it and one thinks so highly of the basic idea of the wing that one believes it will survive even the most misleading experiments which are likely to be tried on it by our unpractical aerodynamic theorists.

The Instone Route.

The Instone Airline has a difficult task in making a paying proposition of the London-Cologne route, though there will be a certain amount of business to be got from parcels and personnel travelling to and from the British Army on the Rhine. The variegated Instone fleet, comprising the old Vickers "Vimy," the D.H.18 and 34s, the Westlands, and Vickers "Vulcans," ought to provide the pilots, the mechanics, and the traffic managers with plenty of experience as to what is most suitable for the line.

When trade with Germany and Austria and the comic Slavonic States to the East and South of them revive there may be quite a decent amount of trade. Also if the gallant Rupprecht of Bavaria again comes into his rightful possessions, sets the example to his brother sovereigns of Saxony, Wurtemburg and other small kingdoms and principalities and so forms an agglomeration of stout little German States whose financial credit is re-established by their being respectable monarchies with native aristocracies instead of half-cock republics run by international Hebrew adventurers there will be an immense rush of business to Western Germany and the direct air line in that direction will profit thereby.

The Daimler Route.

The hardest task of all has been set to the Daimler Airway, and perhaps after all the choice has been for the best. As one remarked in this paper some time ago, the D.H.34s of the Daimler line are the least suitable of all machines for flying across the tiny dyked fields of Holland, especially when one remembers that Holland is more troubled with fog than even this country. If ever a line wanted twin-engined aeroplanes which could crawl through fog at 30 miles an hour and land at 20 miles an hour or less it is that which operates between London and Amsterdam. Yet, by agreement, the line which takes on the job is one which is equipped with high-speed single-engined aircraft which cannot fly at less than 60 miles an hour except when climbing and hit the ground when landing at about 70 miles an hour.

It is true that they pull up very quickly after hitting the ground but a quick pull-up is very little use if the undercarriage drops into a dyke 6 feet wide by 10 feet deep within ten yards of hitting the ground. As a matter of fact it is probably much safer in case of engine stoppage over Holland to alight in a big canal than in any field within sight.

So far there have been very few forced landings in Holland. The Siddeley "Pumas" in the K.L.M. Fokker monoplanes have been so reliable that a complete cut-out of the engine has been almost unknown. The amazing perfection of the engine-overhaul system of the Daimler Airway will probably bring their percentage of forced landing still lower than that of the K.L.M. But that is not going to prevent forced land-

ings caused by fog. And if the line is going to run with the regularity at which Colonel Searle aims, then something must be done about it.

Two things seem to be indicated in this connection. One is the perfection of weather-observation stations in connection with wireless communication to aircraft along this route. The other is the perfection of slow-landing wings. Both are essential to success on any air line, but this line is more likely than any other to bring them to perfection because their need is more likely to be felt.

Colonel Searle, the Chief of the Daimler Airway, made a success of Daimler Hire Ltd. when other car-hiring firms were going broke by the dozen. He achieved success by perfection of organisation. The Daimler Airway has already shown what can be done on the London-Paris route by perfecting the supervision of engines. But when it comes to flying over Holland in fogs and over Germany in North European winter weather even 99% of freedom from engine failure is not enough to ensure success. High-speed machines cannot go on for ever "hanging on their props," as the aviators' phrase has it. Their pilot must be provided with proper weather information and with the ability to land at 0 miles per hour. And one believes that when Colonel Searle knows what he wants he sees that he gets it.

General Brancker's Success.

Since Major-General Sir Sefton Brancker has been appointed Director of Civil Aviation he has achieved remarkable success. When decisions have been needed he has given them with startling promptness. For example, it is said that when the chiefs of three air lines got together and agreed that it would be better if each had the monopoly of a separate route they telephoned to General Brancker at the Air Ministry and asked him whether he would arrange a conference to discuss the question—expecting him to fix a provisional date a week or two later so that he might give the matter due consideration in accordance with precedent. To their surprise he asked where they were, said he would be with them in half-an-hour, arrived in front of time, threshed out the whole affair on the spot, gave his own decision at once, told them he would get the arrangement through, got it through, and to-day has all the details in working order and the firms in full blast on their preparations long before the date on which they expected to have a conference.

That is precisely the kind of handling which Civil Aviation needs, but it needs a lot more of it. General Brancker has described himself as one of the world's worst pilots. He is certainly one of the world's most persistent aviators. Therefore he knows precisely what pilots need if they are to keep on year after year flying over these air routes without having their nerves worn out by anxiety and responsibility.

The Needs of the Air Lines.

He knows that it is all very well for young, energetic and keen pilots engaged on pioneering air routes for the honour and glory of aviation to hammer through fog, rain, hail and snow day in day out as the Air Transport and Travel Co. pilots did in 1919-20. But he knows equally well that for commercial flying to be a success air lines must be organised like railways so that the chauffeur of an air-liner may contemplate with a quiet mind flying daily over his own bit of line till he retires with an old-age pension just like the driver of a railway engine.

People are apt to forget that our great railway expresses only maintain their wonderful regularity because the drivers live entirely on one stretch of line and know every curve and junction and just how fast to travel on each stretch. Few people realise that if a Great Northern driver were taken off the London-York run and put on a Midland express to run on time from St. Pancras to Settle he would either wreck his train somewhere on those awful curves round Miller's Dale or some other Derbyshire beauty-spot or he would arrive an hour late.

Similarly the only way to make air lines a commercial success is to man them with chauffeurs who have the temperament of engine-drivers, who know their routes by heart with every field and tree along them, who know their engines and aeroplanes as well as a driver knows his locomotive and the weight of his train, and who are properly provided with ground communication and know they can trust their ground signals.

An Example of Inefficiency.

On many previous occasions one has exposed the inadequacy of the ground communications on the London-Paris route, especially as regards the utter lack of co-operation on the French section. Belgians who are concerned with the Brussels-Paris route have also told one of the unreliability and inadequacy of the French meteorological information. There have been during the past few weeks many further examples of the failure of the existing system.

In one case a pilot who left Paris in fine weather ran into heavy cloud near the Channel. He tried to get in touch with Croydon on his wireless telephone so as to find out whether there was clear weather at Croydon or whether there was clear air under the clouds. For half an hour or more he kept on trying to get Croydon but all he heard were remarks to some other machine or station chiefly consisting of, "Please repeat, I did not get you clearly." "Your message is not understood," and equally useless information of that sort. Never once did anything come through which could be of use to him.

Meantime he kept on climbing higher and higher till at 8,000 feet or so, when he was nearing his ceiling, he resolved to chance it and dived down into the clouds. Much to his relief he came out into clear air at 2,500 feet or so pretty well on his course, and thereafter was able to come home by sight. But for all the use it was to him or his 8 or 9 passengers wireless telephony and telegraphy might never have been invented.

Now such an incident as that ought never to be permitted. It is a damning indictment of the utter inefficiency of our ground communication system. And it is at least certain that the French are no better than we are in this respect. If those clouds had been down to the ground instead of stopping at 2,500 feet there might quite well have been a sticky ending for 10 or 11 people and a perfectly glorious opportunity for the daily Press to advertise Civil Aviation in the wrong way.

A Simple Remedy.

There is not a shadow of an excuse for such a state of affairs. There is no reason whatever why there should not be transmitting stations at Croydon, Sevenoaks, Lympne, Marquise, Abbeville, Beauvais and Le Bourgêt each sending out general calls every two or three minutes giving the weather conditions at that particular spot. The signals should be sent in Morse and coded according to a weather scale on the instrument-boards of all machines on the route. The pilot could tune-in to whichever station he wanted and get his information in a few seconds.

That is only one simple little matter which would cost only a few pounds, but it would save an enormous amount of strain on the nerves of pilots, it would certainly save many forced landings when pilots come down because they cannot get the information they need or get misleading information, and it might well save many lives and crashed machines. General Brancker knows it just as well as does any pilot on the route and as well as one does oneself. It remains to be seen whether his push and energy will succeed in getting such stations established where his predecessor failed so lamentably to do so, either through apathy or weakness.

Another Example of Inefficiency.

Even such information as that indicated is not enough. For example quite recently there was a thick Channel fog which, as so often happens, overflowed the banks of the Channel here and there. It was perfectly clear at Croydon and Le Bourgêt, but Lympne, Marquise, Beachy Head and Abbeville reported thick fog, so no aeroplanes moved. At length somebody went off and chanced it. He found that from Ashford in Kent he could see France quite clearly and that the fog was only a few hundred feet deep and a mile or so wider than the Channel. Flying over it was no more dangerous than flying the Channel under normal conditions, so he went across and found the fog flowing in over Etaples and Berck to Abbeville, but quite clear air at Samer behind Boulogne and between Abbeville and Amiens, and absolutely no fog as far inland as Beauvais.

Now it is perfectly ridiculous that all air traffic should be held up just because the French air-route methods are so childishly misorganised that there is no way by which Marquise and Le Bourgêt can give out the weather conditions at say Samer, Montreuil, Amiens and Beauvais. French Civil Aviation staff work seems to be nearly as bad as French brigade and divisional staff work was during the war. (G.Q.G. staff work was good, and so was army and corps staff work, but below that it was horrid.) And unfortunately, as one has shown, our own staff work in Civil Aviation seems to be precious little better. One could multiply instances of this kind to an almost unlimited extent, but probably one has said enough to show that there is plenty for General Brancker to do besides arranging the financial affairs of the air lines and paying diplomatic visits on the Continent.

It will be interesting to see whether anything is done in this direction before the real winter sets in, though as a matter of fact these autumn fogs are at least as dangerous as anything later in the year. Meantime the nerves of pilots are being overstrained and passengers' lives are being risked, and, to put it at its lowest, civil aviation is being held up as a laughing stock because of its unreliability, all because

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neither the French nor the British Civil Aviation authorities will spend the price of a commercial aeroplane in laying down proper signal stations on the air routes.

The German Problem.

It will also be interesting to see what arrangements of this sort Colonel Searle will be able to make with the Dutch and German Governments, if and when the Daimler Airway is extended to Berlin. One is inclined to think that the intelligent and efficient German will do the thing well when he once starts.

At the present moment the chief trouble seems to be that the German Government is very reasonably unwilling to let our big commercial aeroplanes fly over Germany. The objection is both natural and logical.

The "Commission Aéronautique Inter-Alliée," to give it the name by which it is commonly known in Germany in recognition of its policy, has placed certain definite limits on the size, engine-power, speed, ceiling, and carrying capacity of German commercial aircraft, which limits make it impossible for the German aircraft manufacturers to build commercial aeroplanes according to modern ideas. The Germans in a properly patriotic spirit say:—"Very well! We may be limited under the Treaty of Versailles, but Germany is still a Sovereign State with which the former Allies are at peace, and therefore she has the right to enact her own air laws for aircraft flying over German territory. We therefore impose on all foreign aeroplanes flying over Germany precisely the same limits as are imposed on German aircraft under the Treaty of Versailles."

This retort to the silliness of the "Commission Inter-Alliée" is perfectly polite, perfectly logical, and perfectly complete. There can be no answer to it except the removal of the absurd regulations of the "Commission Inter-Alliée," And until they are removed it would seem that our own highly efficient air line which bears the good old Anglo-Saxon name of Daimler can neither run its own big D.H.34 aeroplanes into Germany nor arrange for adequate German machines to take over its passengers and goods in Holland.

That must be so unless the diplomacy of Colonel Searle has shown the German officials that he can in the end help German aviation by running through to Berlin. One hopes that he has done so, for a regular line through to the German capital would help quite materially to build up that friendship which is necessary not only to the commercial recovery of Europe but to the military defence of Western civilisation against Slav savagery.

Purely Personal Opinions.

By way of ending this article one would like to express a few personal views as a prospective and representative air line passenger of the future. These views are those of a number of other business men who would like to fly if they had confidence in the present state of commercial aviation.

(a) If flying were cheaper than travelling by boat and train one would take the extra risk. (It is silly to pretend there is no extra risk) for the sake of the saving in time and money.

(b) If flying were as safe as travelling by boat and train one might possibly pay a little extra money for the sake of the saving in time.

(c) But one is not going to take the extra risk and pay the extra money on the chance of saving a little time when one knows that through bad ground communication or faulty mechanism one may be crashed, burned, drowned, or at any rate take two days with much discomfort over an 8-hour boat and train journey.

When the standard machines on the air lines can cruise at 100 miles per hour, fly under full control at 30 miles per hour and land at 20 miles per hour; when their engines use heavy oil instead of petrol, so that there is no undue danger of fire; when ground communication is properly organised; and when fares are no higher than first class boat and rail fares; then and not till then will one become a regular customer of our air lines.

If General Brancker is a big enough man and a strong enough man he can bring about the fulfilment of all those conditions within three years from now, for the means of fulfilling them are all in sight and a matter of less than a quarter of a million pounds would put them into common use. Until then one is not personally interested in civil aviation as a paying passenger.—C. G. G.

THE DEUTSCH CUP.

On Saturday next takes place the race for the Coupe Henri Deutsch de la Meurthe at Ville Sauvage Aerodrome, Etampes. The course is over a distance of 173 miles, and is therefore slightly shorter than the Aerial Derby. Great Britain is being represented by Mr. J. H. James, who will fly the Gloucestershire Aircraft Company's "Bamel," with 450 h.p. Napier "Lion" engine, if it gets there in time. On Saturday last it was held up in London as there was no work being done on the Sunday. The machine has once again gone through the cleaning-up process, and Mr. Folland has designed a new set of wings for the machine with a very much flatter section. The landing speed is now some 20 miles an hour faster than at the Aerial Derby, and the air speed should therefore show a corresponding increase. The Napier "Lion" engine is developing about 560 h.p.

Mr. James' chief rivals for the race are M. Sadi Lecointe, who is flying a Nieuport "Sesquiplan," which has been considerably cleaned up since last year, and the 300 Hispano Suiza engine has been "boosted" up to 400 h.p. Signor Brack Papa is flying a F.I.A.T. biplane, with 700 h.p. "Fiat" engine. Both this machine and M. Sadi's have achieved speeds of 210 and 214 miles an hour respectively, and there is little doubt that the "Bamel" can also get round about that speed.

There are five other French entries: Lasne and Berthelin, on a Nieuport "Sesquiplan" and a Nieuport-Delage biplane, both with 320 Hispanos; Madon or Canivet on a "Simplex" monoplane; Nungesser on a machine of his own design; and Casale on a Casale Blériot with a 400 h.p. Lorraine.

The "Bamel" has been sent over by ground transport, and Mr. James brought the "Sprawk" to Croydon on Saturday, and is proceeding to Etampes on this machine, and will use it for preliminary skirmishes round the course.

Immediately after the race Mr. James is going on direct to Greece to test 50 of the Gloucestershire Aircraft Company's machines ordered by the Greeks. What will happen to them in the present state of Near East politics, and in the hands of Greek pilots is "wrapped in mystery."

As only three representatives are allowed for one country the French will hold eliminating trials at Ville Sauvage on Friday. The three performers who put up the best time without eliminating themselves or their machines will fly in the contest the next day, which is in the nature of a time trial rather than a race. The contest will be dealt with very fully in The Aeroplane next week, and a large percentage of the staff are proceeding to Etampes.

On going to press one is informed that Capt. Madon has either wholly or partially eliminated the Simplex monoplane. It seems that it turned over when landing, and Capt. Madon was somewhat seriously hurt. One wishes him an early and complete recovery.

THE WORLD'S SPEED RECORD.

At Etampes on September 21st M. Sadi Lecointe set up a new world's speed record, beating that set up by Sig. Brack Papa on August 26th at Turin by 5.249 kms. p.h.

In four flights over the measured kilometre he accomplished the first and third flights at a speed of 346.153 kms. p.h., the average of the four flights being 341.717 kms. p.h. (213.575 m.p.h.).

M. Sadi Lecointe was flying the Nieuport-Delage "Sesquiplan" (340 h.p. Hispano Suiza) that won the Coupe Deutsch last year. It was then, and is still, fitted with Lamblin radiators. These latter fitments now appear to be an essential accessory to all racing aircraft, and it seems only a matter of time before they will be found on every aircraft the designer of which professes to consider head resistance and efficient cooling.

AN ALL-STEEL SUCCESS.

Mr. Frank Courtney made a successful test flight on Monday at the Norwich with the all-steel Boulton and Paul "Bolton," with twin Napier "Lion" engines. The flight was in every way successful and Mr. Courtney was very pleased with the machine

An all-steel machine is naturally a particularly interesting experiment if only for comparison with those built of an alloy of some kind, because the structural properties of steel are supposed to be well known to engineers whereas in fact they are not, and the various alloys used by the Germans are still more or less unknown quantities.

Major Heckstall-Smith, late of the British Nieuport Company, and formerly of the Royal Aircraft Factory, tells a story of how when he was at the R.A.F. the National Physical Laboratory sent him some specimens of tubing, made of some aluminium alloy to test. He put these on his desk in the

(*Continued on page 254.*)

80,000 Miles

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Further Proof of Napier Reliability.

...ur differen...
...ach a German glider,
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...2-HOUR DASH TO PARIS.

...roydon Pilot Completes the Home Journey in One and a Half Hours.

By OUR AIR CORRESPONDENT.

Mr. Donald Herne made a trip from Croydon to Paris and back in 4½ hours yesterday.

He left Croydon at 1 p.m., reached Paris at about 3.20 p.m., and after filling up with petrol started on the return journey at 4 p.m.

"I got to Abbeville," he told me, "in 35 minutes, and an hour after leaving Paris I was in mid-Channel."

He landed at Croydon at 5.30 p.m.

Incidentally, the machine he flew, G-EBBS, has done 80,000 miles since April, when she was launched at Stag-lane, Edgware.

This is equal to a distance of more than three times round the world.

...COTT...

"Evening News,"
London, S ptember.

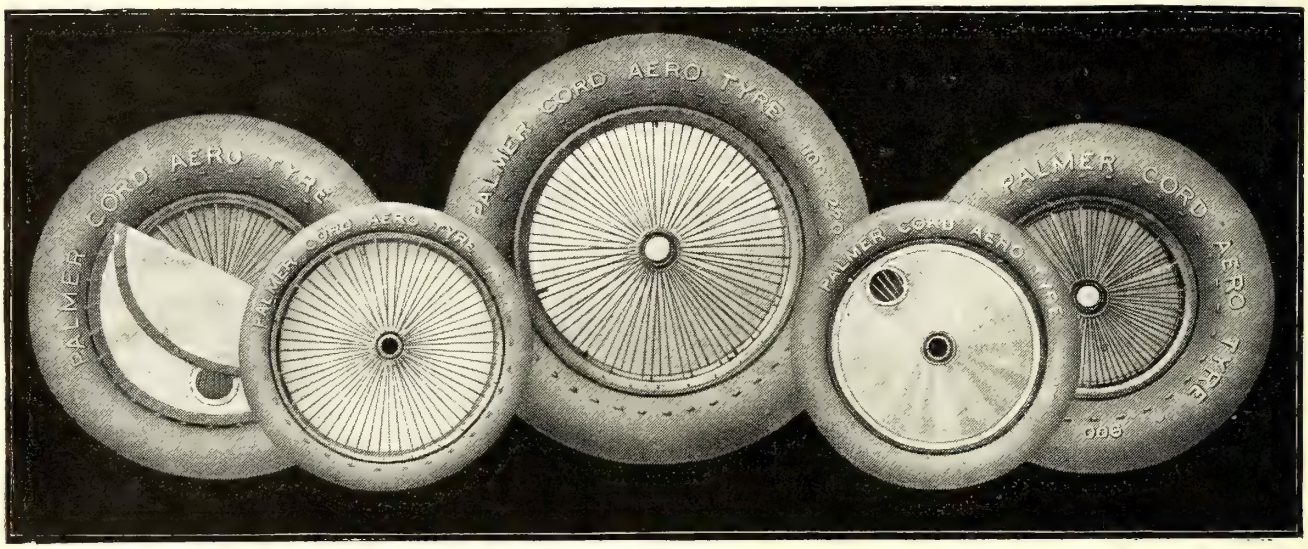
Napier engined aeroplanes have won the Aerial Derby on two successive years, and on August 12th last, when fitted to a Supermarine, won for Great Britain the International Flying Boat Trophy —Schneider Cup.

In the last British Government Aircraft Competitions, the only engine fitted to the machines to secure the highest prizes in all three classes was the 450 h.p. Napier.

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,,	17	72.39	12.7	Central
450×60	30	89.	31.75	Central
,,	138	130.	38.09	Central
575×60	21	160.	28.	Central
,,	34	150.	31.75	104/46
,,	111	150.	38.09	104/46
600×75	21	160.	28.	Central
,,	34	150.	31.75	104/46
,,	111	150.	38.09	104/46
700×75	78	178.	44.45	132/46
,,	79	178.	44.45	Central
,,	100	178.	38.09	132/46
,,	101	178.	31.75	132/46
700×100	77	178.	44.45	132/46
,,	92	185.	55.	135/50
,,	95	185.	55.	Central
700×100	96	178.	55.	132/46
,,	99	178.	38.89	132/46
,,	112	150.	38.09	Central
650×125	119	178.	55.	132/46
750×125	77	178.	44.45	132/46
,,	92	185.	55.	135/50
,,	95	185.	55.	Central
,,	96	178.	55.	132/46
,,	99	178.	38.89	132/46
,,	112	150.	38.09	Central
800×150	82	185.	55.	135/50
,,	85	185.	55.	Central
,,	36*	185.	55.	135/50
,,	40*	185.	60.32	135/50
,,	152	185.	66.67	135/50
,,	163*	185.	66.67	135/50
1000×150	131	220.	66.67	Central
,,	102	185.	55.	125/60
,,	141	250.	80.	Central
,,	201	185.	60.32	125/60
1000×150	209	185.	55.	Central
,,	210	185.	60.32	Central
1000×180	148	220.	80.	Central
,,	149	185.	55.	Central
,,	155	220.	66.67	Central
900×200	107	185.	55.	Central
,,	108	185.	55.	125/60
,,	128	220.	66.67	Central
,,	137	250.	80.	Central
,,	202	85.	60.32	Central
1100×220	134	220.	66.67	Central
,,	136	250.	80.	Central
1250×250	133	250.	80.	Central
,,	154	304.8	101.6	Central
1500×300	115	304.8	101.6	Central
,,	126	304.8	152.4	Central
1750×300	139	400.	152.4	Central

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AERONAUTICAL ENGINEERING

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INCORPORATING AIRCRAFT ENGINEERING AERODYNAMICS, AIRCRAFT FINANCE AND COMMERCIAL AERONAUTICS AND MATTERS PERTAINING TO THE AERONAUTICAL ENGINEER AND THE AIRCRAFT TRADER.

THE WEEKLY COMMENTARY.

Just as a reminder that neither in France nor in Germany has the motorless aeroplane yet supplanted the engine-driven type, there will be found in the following pages descriptions and illustrations of certain new aircraft and engines.

The three-engined Henry Potez machine which attracted some considerable attention at the last Paris Aero Show on account of its excellent workmanship is to be put into service experimentally in one of the French Colonies. The machine is described in detail below.

Whatever may be the position in regard to other branches of Aeronautical Engineering there can be no doubt that Britain leads the world in the development of air-cooled aero engines. The two new German air-cooled radial engines illustrated in the following pages show very distinct evidence of the influence of British research into the design of air-cooled cylinders.

Evidence of the very great excitement created in France by the German gliding performances of this year as contrasted with the very small showing made by French machines at Clermont Ferrand is given by the large number of new prizes which have just been announced in France.

THE HENRY POTEZ 3-ENGINED BIPLANE.

A machine that aroused much interest at the last Paris Aero Show was the Henry Potez 3-engined all-metal biplane, type X. This machine has been purchased by the French Government for service in the Colonies, and is at the moment undergoing its trials at the S.T.Ae. aerodrome at Villacoublay. The study of Colonial aircraft can hardly be said to be complete, but by designing his machine with components of known quality M. Potez has probably produced a machine that will stand up to the exacting work of the Colonies, and thereby supply ample material for further experimentation. The metal construction is simple and easily repairable, the engines, three 180 h.p. Hispano-Suizas, are well-tried and extremely reliable, the undercarriage is robust; in fact, all details appear to have been well thought out.

The machine resembles a large tractor biplane with two wing engine nacelles added. The construction, with the exception of the central or cabin portion of the fuselage and all covering surfaces, is of metal.

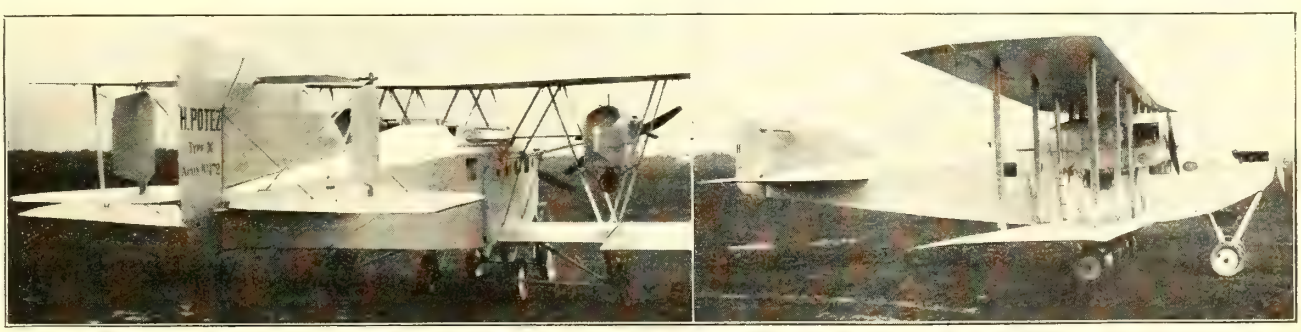
The wings are of biplane form, unstaggered, but having equal dihedral, and the top plane has 3 sq. m. more surface than the bottom plane. Each plane is in four pieces, the two outer sections being made to fold, thereby reducing the span to 12 m. for storage purposes. The spars and ribs are of duralumin. The two spars are built up of four duralumin strips, giving them a girder section formed by two channel sections back to back, but with space in between, riveted to two flat strips top and bottom. The ribs are built of two strips of U section united by trellis work. The leading edge is made up of two strips, one U and one flat, giving a final D section. All fittings pass round the spars.

There is no centre section, the two inner wing sections being attached to a false rib mounted on an inverted Vee cabane. The lower wing is attached direct to the fuselage. There are two sets of interplane struts and an engine Vee on either side of the fuselage, all of duralumin. Interplane bracing is by steel cable.

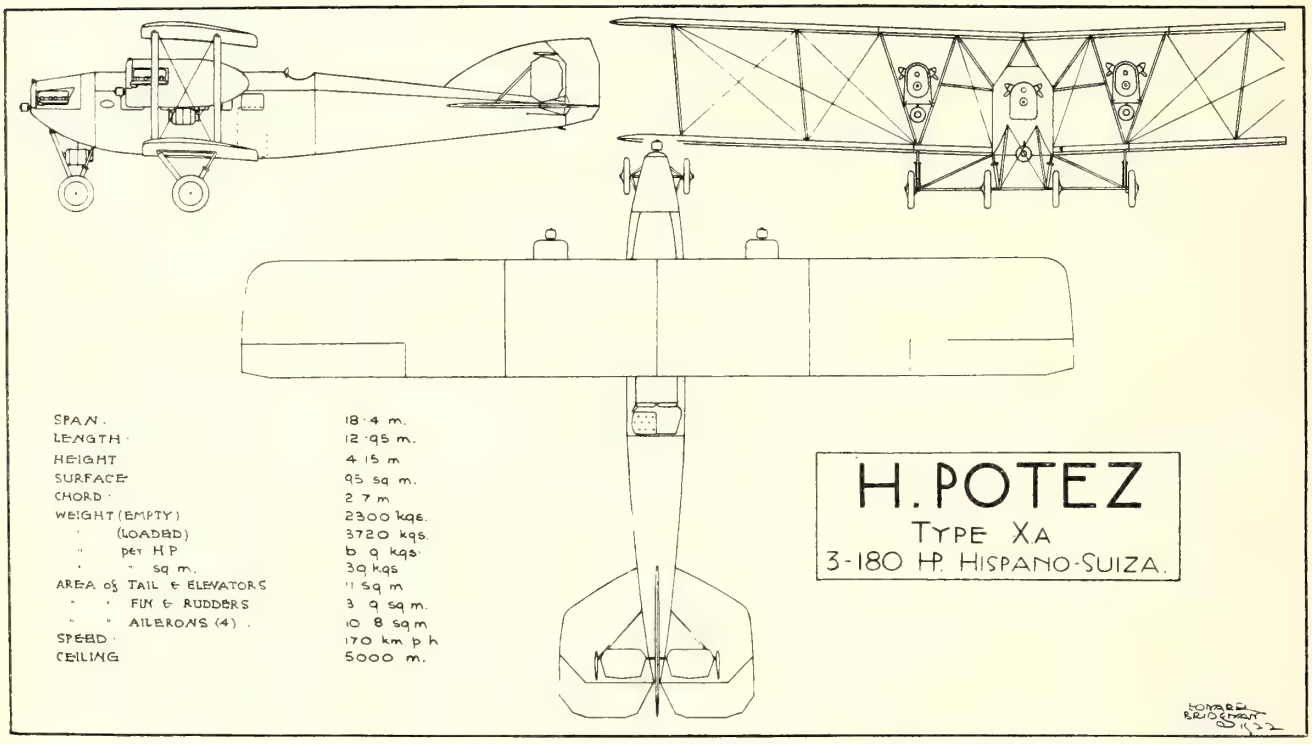
The fuselage is in three parts, the forward section carrying the central engine. The cabin is of wooden construction, having built-up formers and three-ply covering, and is 5 metres long, 1.3 metres wide, and 1.9 metres deep. The pilot's seat is situated at the rear of the cabin, to which he has access. The controls and instrument board are of standard type, and there is provision for the carrying of special navigation instruments and wireless telephone and direction-finding apparatus.

The tail consists of a large fixed tail plane and divided elevators, fin and rudder. Above the tail plane is fitted a pair of horizontal and vertical surfaces, the former for tail-trimming purposes and the latter to offset the effect of one of the wing engines cutting out.

The undercarriage is very similar to that employed on the Handley Page W.8bs, and consists of 4 Vees, placed one under each engine and two under the fuselage. The rear legs of the Vees are telescopic and are sprung by means of a number of small rubber rings under compression. This one believes is the subject of a patent held by the Blackburn Aeroplane and Motor Co., Ltd. Each axle carries two wheels, the inner one of which is fitted with a brake. The whole main undercarriage is set in rear of the centre of gravity. Under the nose an undercarriage unit similar to one-half of the rear chassis, is fitted. A small laminated spring tail skid is fitted under the tail, but only as a safeguard, as the whole of the machine's weight is taken on the front undercarriages.



The Henry Potez type Xa (3-Hispano-Suiza 180 h.p.).



The engines are mounted on all-metal engine bearers, the central one in the nose of the fuselage and the wing engines in two Vees built up of streamline tube. Petrol is carried in three tanks, each of 250 litres capacity, situated in the rear of each engine. Under each engine is mounted one Lamblin radiator.

The Potez type X has taken off and flown on two engines while undergoing her official tests piloted by M. René Labouchère, and up to the moment has given a very good promise of performance.

The specification and scale drawings show its general arrangement and the principal dimensions.—L. B.

THE 45 H.P. HAACKE ENGINE.

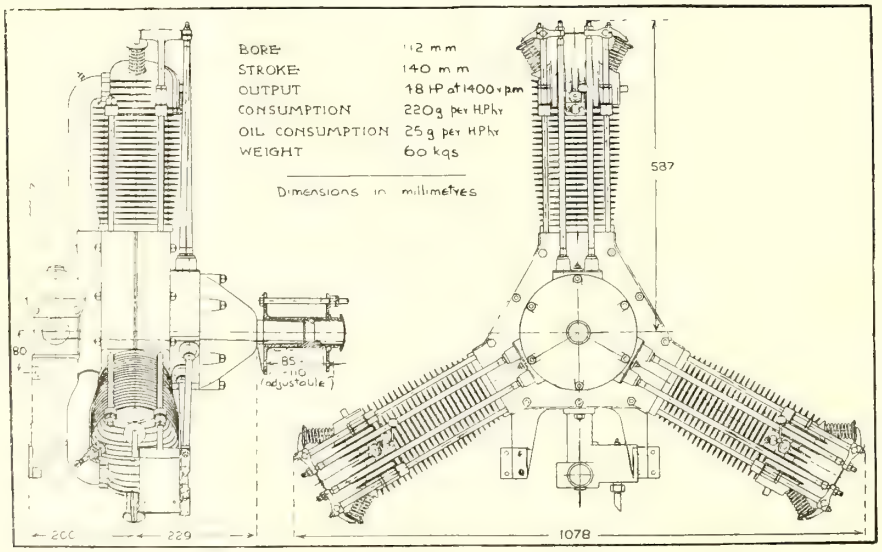
The engine shown in the attached outline drawing is a new model produced by Hermann Haacke, of Johannisthal, the maker of the already known 30 h.p. two-cylinder engine which has been used in a number of sporting type German machines.

Like the two-cylinder engine, the present type is of the air-cooled variety. It differs in certain important details of construction—particularly that of the cylinders. These consist in the present model of an aluminium alloy barrel shrunk onto a steel liner, and fitted with a removable cylinder head, held on by four long bolts from the crankcase. The front pair of these bolts serve also as supports for the valve rocker brackets. The two valves are set in the head with a large intervening angle, and ample radiating ribs are arranged between the valve stems.

Magneto and carburetter are carried at the rear of the crankcase, but projecting feet are fitted to the latter in such wise that both these auxiliaries are ahead of the plane of attachment. A fireproof bulkhead can therefore be fitted immediately behind the engine without any difficulty. The carburetter is mounted as low as possible in order to facilitate gravity feed. Magneto advance and throttle opening are interconnected, and only the one control connection need pass through the bulkhead.

Lubrication is effected by two gear pumps—one of large capacity acting as a scavenger. The other forces oil through the crankshaft to the bearings and through the connecting rods to the gudgeon pins. The interior of the crankcase is ribbed in such a manner as to prevent oil sprayed onto the walls from falling into the lower cylinders, and the scavenger pump draws from the oil lodgments so provided as well as from the base of the case.

All the figures which are available concerning the engine are given on the illustration. The weight per h.p., 1.33 kg. or 2.9 lbs. per h.p., is reasonable for so small an engine. The fuel consumption claimed—220 grammes or 0.484 lbs. per h.p.—is so low that one hesitates to accept it without further confirmation.



GENERAL ARRANGEMENT OF THE 45 H.P. THREE-CYLINDER HAACKE ENGINE.—The first Haacke engine was a two-cylinder opposed engine of 30 h.p. with semi-steel cast cylinders.

A new model, fitted with aluminium cylinders and steel liners, was afterwards produced, and was apparently very successful. The present three-cylinder 45 h.p. has been developed since then, and it is understood that a whole range of engines all built up of the same cylinder units is to be produced.

The existing 2- and 3-cylinder units are to be followed by a 5-cylinder 65 h.p., a 7-cylinder 110 h.p. and a 9-cylinder 135 h.p.

VICKERS LIMITED

Brief Specification:
"Viking" Mark IV.
6 Passengers and Baggage, or 1,360 lbs. Freight.
RANGE: 340 miles. SPAN: 50 ft. HEIGHT: 15 ft. 1 in. LENGTH: 35 ft.

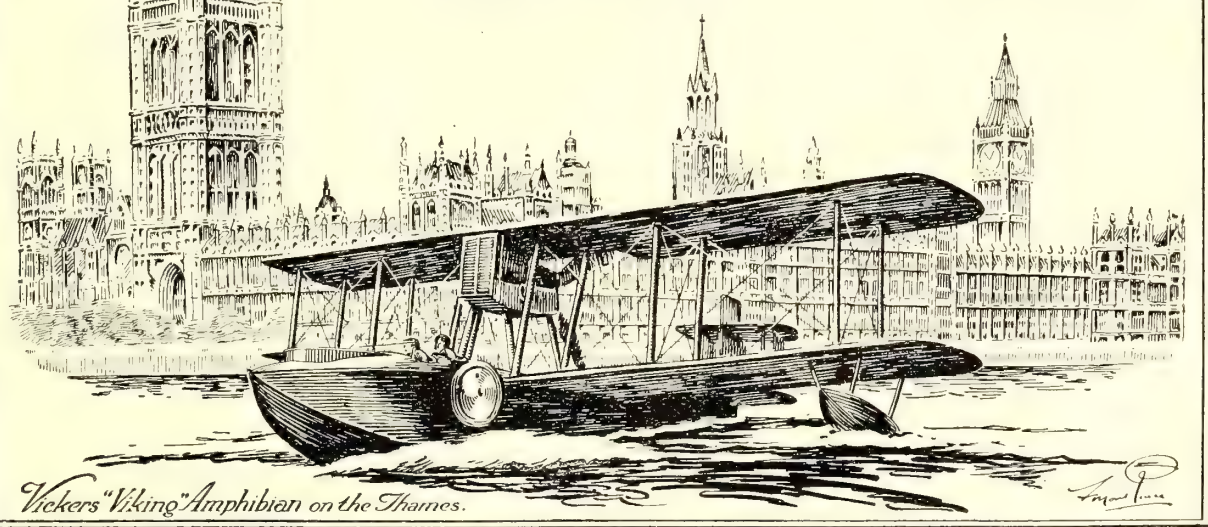
The Vickers "Viking" was the winner of the FIRST prize of £10,000 for the Amphibian Class of Aircraft entered for the BRITISH AIR MINISTRY COMPETITION, September, 1920.

The Vickers "Viking" was classified FIRST in the following competitions at the INTERNATIONAL SEAPLANE COMPETITIONS at ANTWERP, July, 1920.
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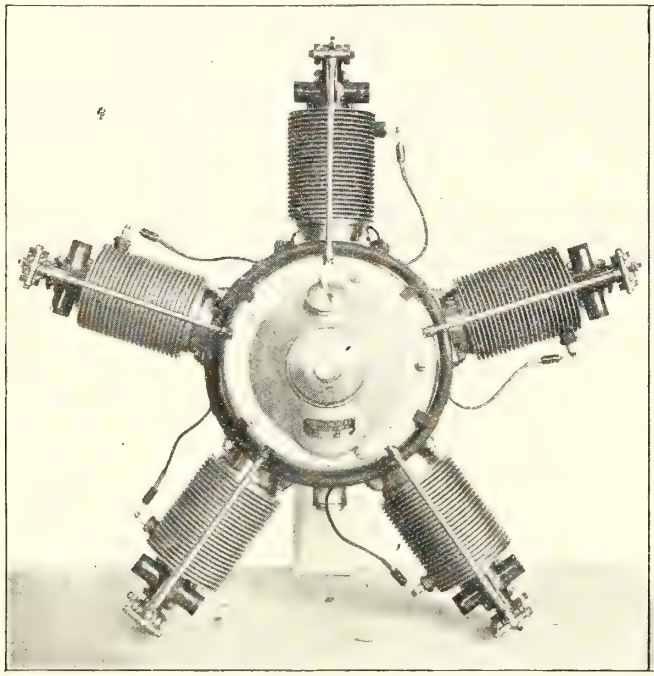
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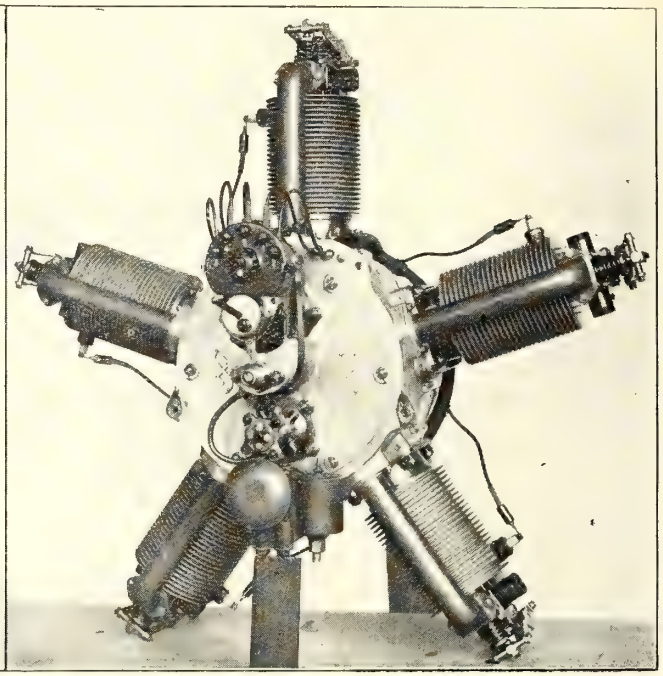
Telephone: Victoria 6900.
Telegrams: "Vickers, Vic. London."



Vickers "Viking" Amphibian on the Thames.

THE 60 H.P. SIEMENS-HALSKE RADIAL ENGINE.





The Siemens-Halske firm produced during the war a number of rotary engines, generally based on Allied designs. Except for the 200 h.p. model which was produced too late to be used in the war these engines were not particularly successful. Since the armistice the firm has given attention to the stationary air-cooled radial, and has produced the 5-cylinder 60 h.p. model here illustrated.

As the photographs show this engine is of very clean and simple design—for naturally no very great complexity is necessary in an engine of such relatively low power. The most interesting feature of the engine is that—as in the Haacke engine—the cylinders are of aluminium alloy with steel liners. The cylinder heads and valve ports appear to be cast in one with the aluminium barrels, but it would appear that the steel barrels are actually the main support of the cylinders as a whole—for the attachment to the crankcase is by flanges below the aluminium fins.

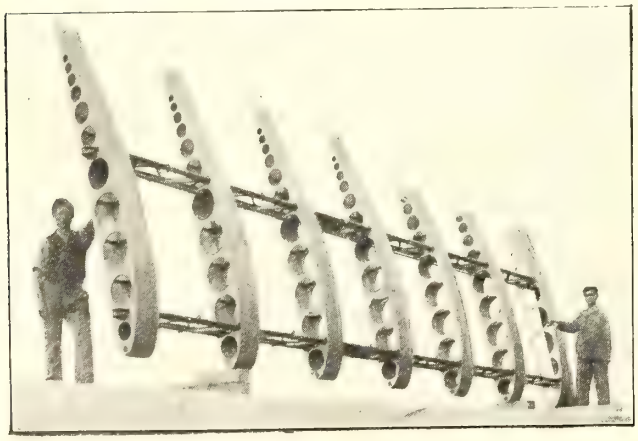
It is therefore probable that the steel liners are screwed into the aluminium bodies—although possibly the "liners" have closed heads and are held onto the aluminium casting by the valve seats—much as the Napier "Lion" aluminium head is carried.

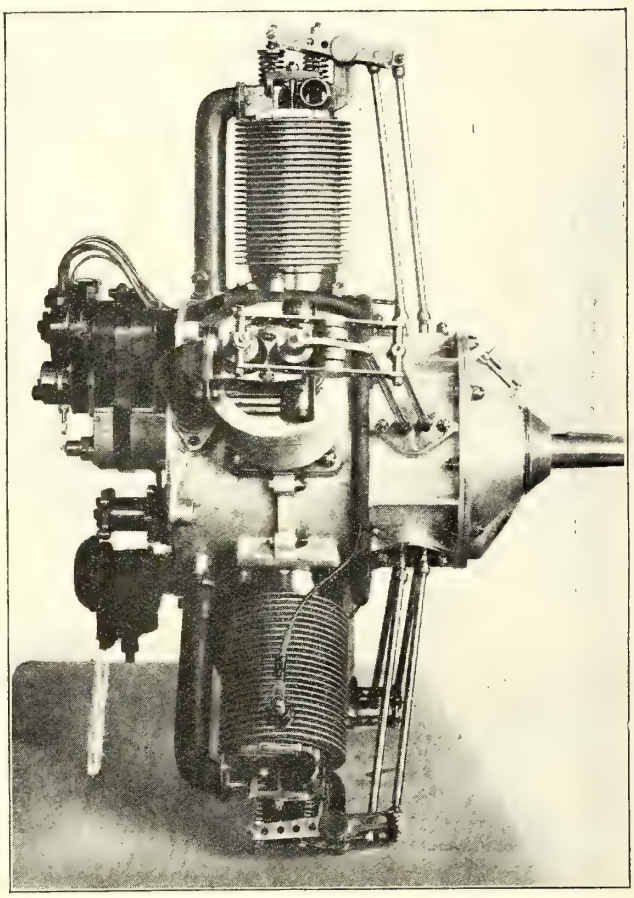
In any case the compound aluminium and steel cylinders of this and of the Haacke engine obviously owe their origin to British research into the design of air-cooled cylinders.

Specification.

The specification is as follows :—

Bore, 100 m/m.
Stroke, 120 m/m.
Normal h.p. 55/60.
Normal r.p.m., 1,400, about.
Consumption :—Fuel, 260 grammes per h.p. hour.
,, Oil, 8-10 ,, per h.p. hour





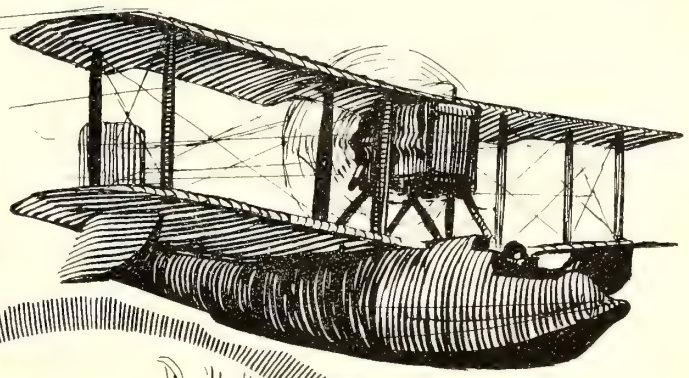
A CURIOUS METAL WING.

The photograph reproduced here is the skeleton of the wing of one of the recent Dornier single-engine machines. The wing of the Dornier tractor flying-boat "Dolphin," and of the land six-seater C.III. are both of this construction.

The two spars are of steel, composed of trough section top and bottom members tied together with lattice work. The ribs are duralumin boxes of very great cross-section.

These ribs are sufficiently stiff to serve as drag bracing struts, and the covering of sheet duralumin takes the place of bracing wires, and a very simple wing construction results.

No information as to the weight or strength of this form of construction is available, but it certainly looks like a very simple solution of the problem of metal wing design.

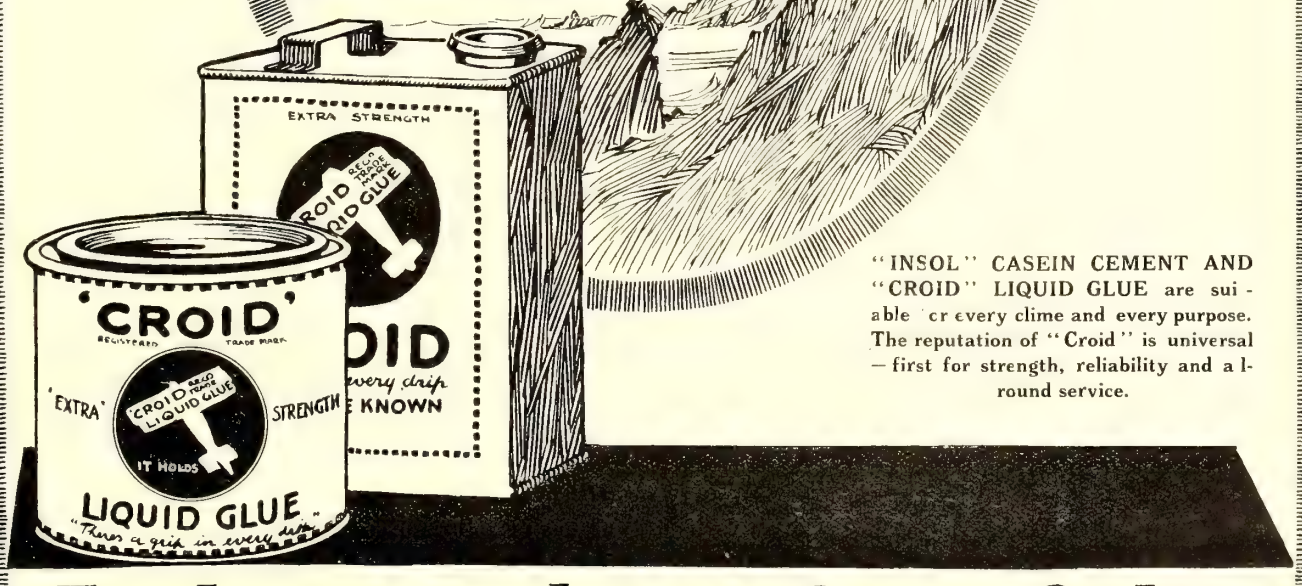


A British Success

Manufactured by the Supermarine Aviation Company, Ltd., Southampton, the Flying-Boat "Sea Lion II" carried off, under th most adverse weather conditions and in open competition, the famous "Schneider Trophy." Throughout the construction of this boat no other Glue was used but "Insol" Casein Cement, "Grade Aye," in which connection the manufacturers report:

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A triumph alike for British Aviation and British Liquid Glues!



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THE FRENCH GLIDER CRAZE.

Following the lead given by M. Michelin, M. Louis Breguêt has offered a prize of 15,000 francs for the French glider pilot using a French machine who obtains the greatest speed for a flight of at least an hour, the speed to be checked by a registering anemometer. The speed must be over 45 kilometres an hour and the total fall from the starting point to the landing place must not be more than a thousand metres. This competition will be open until October 21st, 1923.

A third competition is for a prize offered by M. Georges Dreyfus open to French pilots. The prize is a cup and the competition is divided into two parts each with an additional money prize. The first part of the competition is to be completed by April 30th, 1923. The prize is 10,000 francs and will be given for the longest distance covered by a glider in a flight which ends at the point from which it started. The second part of the competition will end on April 30th, 1924. The conditions are similar to the first, the only difference being that for the first part the minimum flight must be more than 25 kilometres and for the second part more than 75 kilometres. The cup will be awarded to the winner of the latter.

In addition MM. Francheli and Louvet have offered two prizes of 5,000 francs open to French pilots with French gliders to be won by May 31st, 1924. In each case the winner will be the one who attains the greatest height above the starting point at the end of the second minute of flight.

The Association Francaise Aérienne, which organised the recent glider competition at Clermont Ferrand, has definitely decided to hold a second meeting next year. Two prizes, one of 10,000 francs and the other of 5,000 francs will be offered to the two machines which having landed within 500 metres of a point fixed in advance have made flights of the longest duration.

M. Gabriel Borel has offered a prize of 10,000 francs which will be awarded to the longest flight of more than 25 kilometres, after which the machine has to alight at a given point. This competition will be open until December 30th, 1923.

Finally, the Farman brothers have offered a prize of 10,000 francs for a competition the conditions of which are not yet fixed though it is probable that it will be in the nature of an altitude contest.

Altogether there is now more than £3,000 in prize money to be won in France for gliding. And yet one always thought that America was the chief country for crazes. Doubtless this is merely another excess of Gallic emotion caused by German enterprise, which itself is the result of the operations of the Commission Aéronautique Inter-Alliée. It seems rather a Heath-Robinsonian method for a nation to adopt to excite itself to aeronautical progress.

BRITISH GLIDERS.

If the air at the *Daily Mail* glider competition is as thick with gliders as it is now with rumours of them the meeting will certainly not lack interest. Apart altogether from rumours, however, there is very certainly a considerable activity in the matter, and the following information may be accepted as reliable.

Mr. E. C. Gordon England, who soared for 58 seconds over Amberley Mount on one of the 1908-9 Weiss gliders, is constructing a small cantilever monoplane to his own designs for the competition.

The De Havilland Aircraft Company have in course of construction one monoplane glider, and are probably building another to Capt. de Havilland's designs.

Mr. Handasyde, of the Handasyde Aircraft Company, proposes to construct a glider.

The Central Aircraft Company have under construction a glider designed by Capt. W. H. Sayers, which is being built for Major M. E. A. Wright, Mr. F. T. Courtney, and Capt. Sayers. This machine is to be entered for the competition, and will be flown by Messrs. Wright and Courtney.

A MATTER OF EXCHANGE.

As already mentioned in this paper it is impossible, in the existing state of the exchange, for German aeronautical enthusiasts to subscribe to British aeronautical papers. At the same time, owing to the considerable variation of the exchange, British subscribers to German papers are liable at any moment to be informed that the price in marks has been multiplied and that therefore their subscriptions have lapsed.

It is undoubtedly mutually to the advantage of British and German students of aeronautics that each should study the technical papers of the other's country. The best way of doing this seems to be for subscribers to British technical journals to exchange their copies when they have read them for copies of the German papers. Therefore one would be glad to hear from any readers of The Aeroplane who would like to arrange an exchange with German aeronautical students.

METAL AIRSCREWS.

The steadily increasing interest in metal construction in aircraft makes it desirable to draw attention to the fact that one of the Leitner metal airscrews made by the Metal Airscrew Company, Limited, Regent House, Kingsway, W.C.2., has recently been in use with a Napier "Lion" engine on a D.H.18 belonging to the Instone Air Line.

The screw was used on the London-Brussels route for some time and was then taken off for examination. As no defects could be discovered it was then put back again and is now being used alternately on the London-Paris route and the London-Brussels route.

The following letters on the subject will be of considerable interest:—

Copy of Letter from the Instone Air Line, Ltd., to Messrs. Ogilvie and Partners.

104, High Holborn, W.C.
August 21st, 1922.

Dear Sirs,

Re 3-Bladed Metal Propellel Napier Lion Engine.

The above experimental propeller which was kindly loaned us by you, has now been flown 26.05 hours, and as you are aware, has been removed for inspection. The pilots who have used this are Messrs. Barnard, Courtney, and Robins, and in each case the report given by these pilots is very satisfactory.

Mr. Courtney stated when he came off his first trip that the propeller was the best proposition he had sat behind, and the absence of fluttering was a most marked improvement over the wooden pattern.

We take the liberty of recommending the following modifications:—"Propeller shaft nut to be exactly similar to Napier nut as regards number of teeth. The locking plate for hub and propeller nuts to be made in two separate parts, one to lock hub nut, and one to lock 'prop' shaft nut."

(Signed) G. Baxter,
Works' Superintendent.

The Instone Air Line, Ltd., Croydon.

Report on Metal Airscrew.—(1) The running of this airscrew is very pronouncedly smoother than that of the wooden airscrews. This is probably due to the absence of flutter on the metal tips. There is also, however, the consideration that this propeller being heavier, and the amount of inertia being presumably considerably greater, its increased fly-wheel effect would also help towards smoothness. I think, however, that it is the absence of flutter of the tips which is most responsible for this.

2. So far as one can tell when flying under different conditions, the propeller seems to give about 2 to 3 miles an hour more speed and at least as good a climb.

3. So far as the take-off is concerned, it is not possible for me to report on this owing to the fact that whilst I was flying with this airscrew there was a defect in the elevator control which was making the take-off very bad.

(Signed) F. T. Courtney.
August 19th, 1922.

The Metal Airscrew Company state that when their new dies are finished both the appearance and performance of their metal screws will be greatly improved, and, what is equally important, the cost will be a commercial proposition. It is also of interest to note that the French works which have taken over the construction in France of the Leitner-Watts screws are beginning to manufacture metal airscrews next month.

PARACHUTE PRICES.

A new list of parachute prices, which are now considerably reduced, has been issued by E. R. Calthrop's Aerial Patents, Ltd., of 423, Edgware Road, W.2. The "A1" type parachute, which weighs about 28 lbs. and has a bulk of 2.04 cubic feet, is now reduced to £65. The "A2" type, which is 2 lbs lighter in weight and slightly less bulky, is the same price. The "Military D.4" type parachute with a flexible container weighs 22 lbs. and has a bulk of 1.50 cubic feet. The price of this is also £65.

The list also contains particulars of variable speed attachments which make it possible to vary the gradient of a descent so as to select a good, or avoid a bad, landing. Coloured and decorated parachute bodies cost slightly more than the prices mentioned. Particulars are also given of small parachutes for mail dropping and so forth, and different types of harness are specified.

PILOTS WANTED.

A permanent position as pilot to an established air transport concern abroad is now vacant. Applicants who must have extensive experience of flying of seaplanes of both the float and boat type should address their applications in the first instance to "Seaplanes," c/o The Editor, The Aeroplane, 175, Piccadilly, W.1.

Several times recently one has been asked to find ordinary aeroplane pilots in a hurry and has not been able to find any. Names and addresses of disengaged pilots would be welcome.

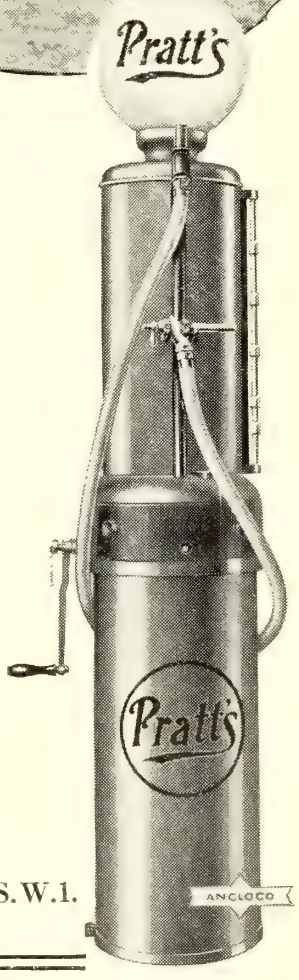


Photo by J. T. Roberts, Croydon

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D A 500

(*Continued from page* 244.)

evening and in the morning found that all that was left was a little heap of powder. The change of temperature in the night had caused contraction or expansion of the metal to such an extent and set up such tension that the structure collapsed.

On the other hand steel plays quite curious tricks, and the effect of corrosion round rivet-holes and at points where there is "work" between members of the girder structor has to be watched with care. Also scientists still disagree as to whether vibration causes crystallisation or whether crystallisation is an inherent state which is only shown by vibration.

Therefore the future performance of the "Bolton" will be watched with interest. But in any event Boulton and Paul, Ltd., and Mr. J. D. North are to be congratulated on the immediate success of the machine which, considered purely as an engineering structure marks a distinct step forward in aeronautical engineering. It is highly satisfactory to see this proof of the soundness of the theories put forward years ago by the Steel Wing Company, Ltd., and one or two other pioneers of all-steel construction, among whom must certainly be numbered Mr. North, the designer of this very successful machine.

THE ROYAL AERO CLUB.

Club Banquet.—It has been decided to hold a banquet towards the end of October to commemorate the British victory of the Supermarine-Napier Flying Boat in the Jacques Schneider Cup, 1922, and to present a silver medal to the pilot, Capt. H. C. Biard.

The Gliding Competition.—A meeting of the Gliding Committee was held on Thursday, September 14th, 1922, when there were present:—Lieut.-Col. M. O. Darby, in the chair; Lieut.-Col. W. A. Bristow, Major O. T. Gnosspelius, Mr. W. O. Manning, Capt. W. H. Sayers. In attendance: Mr. B. Reynolds, Mr. F. Entwistle (Meteorological Department, Air Ministry), and the Secretary. The Committee considered the reports on the site for the Gliding Contest, and it was decided to select Itford Hill, on the South Downs, near Lewes. The Secretary was instructed to approach the owners and make the necessary arrangements.

Shed accommodation will be provided free and will be available from October 12th. Machines by rail should be sent to Glynde Railway Station. Machines from abroad should be sent to Newhaven. Transport from both these stations to the sheds can be arranged through the Secretary, Royal Aero Club, 3, Clifford Street, London, W.1.

Entries.—(a) Capt. F. Warren Merriam, Whiteley Bank House, Wroxall, Isle of Wight (monoplane). (b) Major M. E. A. Wright, Mr. Frank Courtney, Capt. W. H. Sayers, c/o The Aeroplane, 175, Piccadilly, W.1. (monoplane) (c) Mr. A. H. Knott, 119, Pentre Treharne Road, Landore, near Swansea (monoplane). (d) George England (1922), Ltd., Hersham Road, Walton-on-Thames, Surrey (monoplane) (e) Mr. J. Hogg Robertson, 1, Albemarle Street, W.1. (monoplane). (f) Mr. J. M. Hargreaves, 39, Lynmouth Road, Reading (biplane). (g) Mr. John J. O'Freddy, 56, St. Martin's Lane, London, W.1 (biplane).

A SUGGESTION.

The D.H.34s on both the Instone and Daimler lines are now carrying their full loads, and getting off with the greatest of ease. All the pilots now seem to like them very much. Therefore people have been asking whether it would not be best for all future commercial machines to do their type tests at Croydon flown by commercial pilots under service conditions instead of at Martlesham in the hands of R.A.F. pilots. One gathers that the D.H.34 in particular is by no means beloved by Martlesham pilots, though at Croydon it is now realised that it is a very fine commercial machine indeed. This is natural enough, as it is not to be expected that pilots who are used to flying fast scouts are ever likely to prefer a heavy commercial machine.

Martlesham's opinion of the D.H.34 is now one of the standing jokes at Croydon. So much so that when Captain Geoffrey de Havilland visited the aerodrome a few days ago, when he saw a 34 starting off to Paris he remarked, "Hello, there goes one of those awful 34s."

NEMESIS.

"M. Damblanc, the French experimenter, is"—according to the *Times*—"making observations in November on the fall of helicopters through air when dropped from a balloon stationed from 3,000 ft. to 4,000 ft. above the earth.

"The helicopters will have no pilots, but will be provided with measuring instruments to record the various phases of the descent. M. Damblanc believes that the helicopter will fall at a speed less than 30 ft. a second."

[Though, or rather as, the helicopters "will have no pilots," this seems an excellent chance for their inventors to accompany them when dropped from the balloon aforesaid. Then the inventors would be safe to demonstrate simultaneously salvation by faith and salvation by works.—Ed.]

THE FAT BOY OF THE PRESS.

The *Daily Express* news-sheet is rapidly acquiring for itself an unenviable reputation for lack of balance on aviation matters whenever it deigns to interest itself in the subject; that is to say, on aeroplane crashes, as it seems to ignore all but purely destructive news.

The ridiculously ghoulish imaginary drawing of the air collision in April is still fresh in everyone's mind, and on Monday of this week, when an American bomber crashed in America and killed half-a-dozen inmates, the *Express* came out with large headlines and a scream which almost made one think that the accident had occurred in one's back garden. Fortunately, so far as one knows, none of those killed was carrying a copy of the *Express*, so that we shall not have further screams to the effect that the victims have "benefited under our insurance scheme," but still one never knows what to expect next from the paper which gave us the game of "Beaver." By the way, one has often suspected that the staff of the *Express* saw in this game some subtle advertisement for the proprietor.—G. D.

R.A.F. INTELLIGENCE.

R.A.F. Appointments.

Air Ministry, Sept. 13th.

Wing/Cmdrs. J. N. Fletcher, A.F.C., from Air Ministry (D. of E.) to No. 1 F.T.S. (Supernumerary), 1/9.

S/Ldrs. J. A. G. de Courcy, M.C., from R.A.F. Base, Gosport, to R.A.F. Depot (Supernumerary), 1/10; A. W. F. Glenny, M.C., D.F.C., from H.Q., R.A.F., India (India), to command No. 28 Squadron, 1/8; E. Rivers-Smith, M.V.E., from R.A.F. Depot to No. 1 Group H.Q., 12/9.

F/Lts. G. C. Bailey, D.S.O., from School of Photography to R.A.F. Depot (Supernumerary), 1/10; T. C. Thomson, from C.F.S. to R.A.F. Depot (Supernumerary), 1/10; W. L. Fenwick, from No. 24 Squadron to No. 1 F.T.S. for duty as Adjutant, 5/9; A. L. Fiddament, from No. 20 Squadron (India) to H.Q., R.A.F., India (India), 24/7; F. St. J. Woolard, A.F.C., from No. 4 F.T.S. (M.E.) to No. 216 Squadron (M.E.), 4/8; A. L. Lingard, from The Packing Depot to No. 1 F.T.S., 11/9; H. H. Balfour, M.C., from H.Q.I.A. to C.F.S. (Supernumerary), 7/9; D. J. Jones, M.B., from Research Laboratory and M.O.S. of I. to No. 1 School of T.T. (Boys) (Halton), 7/9; J. K. R. Landells, M.B., from Research Laboratory and M.O.S. of I. to R.A.F. Depot (Supernumerary), 4/9; J. A. Musgrave, from Research Laboratory and M.O.S. of I. to No. 1 School of T.T. (Boys) (Halton), 4/9; R. A. Young, from H.Q., No. 12 Wing, Ireland, to R.A.F. Depot (Supernumerary), 9/9; O. St. Leger Campion, from R.A.F. Depot to R.A.F. Central Hospital, 18/9; C. P. Barber, from Inst. Design Estab. to R.A.F. Depot (Supernumerary), 8/9; W. J. King, D.C.M., from No. 1 S.D. to H.Q., R.A.F., India, 6/4. Substituted for the notification concerning this Officer which appeared 26/4.

F/Lt. (Act. Wing/Cmdr.) L. J. Lightfoot, O.B.E., from R.A.F. Depot to H.Q., R.A.F., Iraq (Supernumerary), 1/9.

F/Lt. (Act. S/Ldr.) F. Binns, M.B.E., from Army (R.A.P.C.) to R.A.F. Depot (Supernumerary), 4/9.

Air Ministry, Sept. 19th.

From the *London Gazette*.—Grp/Capt. A. E. Borton, C.B., C.M.G., D.S.O., A.F.C., to be Acting Air/Com. (Aug. 31st).

Air Ministry, Sept. 21st.

Air/Com. E. A. D. Masterman, C.M.G., C.B.E., A.F.C., from Half-pay List to C.F.S. (Supernumerary), 2/10.

Wing/Cmdrs. D. L. Allen, A.F.C., from R.A.F. Depot to Half-pay List, 18/9; A. V. J. Richardson, O.B.E., M.B., D.P.H., from R.A.F. Depot to Air Ministry (D.M.S.), 18/9; J. McIntyre, M.C., M.B., M.A., from Air Ministry (D.M.S.) to H.Q., No. 1 School of T.T. (Boys) (Halton) (Supernumerary), 18/9.

S/Ldrs. J. T. Whittaker, M.C., from R.A.F. Depot to H.Q., No. 12 Wing, Ireland, for Air Staff duties, 18/9; G. G. A. Williams, from No. 56 Squadron (M.E.) to Aircraft Depot, Egypt (Supernumerary), 8/9; A. T. Harris, A.F.C., from No. 31 Squadron (India) to H.Q., R.A.F., Iraq (Supernumerary), 28/7.

F/Lts. C. R. Richardson, from No. 70 Squadron (Iraq) to R.A.F. Depot (Supernumerary), 6/8; B. Ankers, D.C.M., from No. 4 F.T.S. (M.E.) to R.A.F. Depot (Supernumerary), 23/8; W. Burkinshaw, from Palestine Wing H.Q. to R.A.F. Depot (Supernumerary), 23/8; P. C. Livingston, D.P.H., from No. 20 Squadron (India) to R.A.F. Depot (Supernumerary), 12/8; C. A. Harrison, from R.A.F. Depot to C. & M. Party, Biggin Hill, 5/9; O. Armer, from No. 5 F.T.S. to No. 2 Squadron (Ireland), 15/9; A. H. Wann, from R.A.F. Depot to School of Naval Co-operation and Aerial Navigation (Supernumerary), 7/9. Substituted for the notification which appeared in R.A.F. Intelligence, 29/8. G. C. Pirie, M.C., D.F.C., from No. 4 Squadron to H.Q. (I.A.), for Air Staff duties, 1/9; P. G. N. Ommanney, from R.A.F. Depot to Half-pay List, 11/8; J. W. Harper, M.D., from H.Q., R.A.F. (M.E.), to No. 14 Squadron, 11/8; J. P. Coleman, A.F.C., from No. 56 Squadron to Aircraft Depot, Egypt (Supernumerary), 8/9; A. J. Long, from Electrical and Wireless School to M.T. Repair Depot (Supernumerary), 25/9; F. Petch, M.B.E., from R.A.F. Depot to I.A.A.D., 1/10; L. E. Taylor, M.B.E., from Instrument Design Estab. to Seaplane Training School, 1/10; A. W. Mylne, from Electrical and Wireless School to R.A.F. Cadet College (Flying Wing) (Cranwell), 20/9; J. K. R. Landells, M.B., from R.A.F. Depot to No. 2 Squadron (Ireland), 19/9; T. McClurkin, M.B., to Research Laboratory and M.O.S. of I., 11/9; G. S. Ware, M.B., to Research Laboratory and M.O.S. of I., 11/9; H. H. M. Fraser, from School of Photography to No. 2 F.T.S., 1/10; D. W. Clappen, from School of Photography to Armament and Gunnery School, 1/10; J. F. Gallagher, from No. 1 School of T.T. (Boys) (Halton) to R.A.F. Depot, 23/9; David J. Jones, M.B., from No. 1 School of T.T. (Boys) (Halton) to R.A.F. Depot, 23/9.

The London Air Defence Area.

The *Morning Post* states that the raising of the ground troops of the two London Air Defence Brigades has been begun. These ground troops will consist of gunners, sappers,

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1917 : : 100 M.P.H.
1918 : : 118 M.P.H.
1919 : : 147 M.P.H.
1920 — Awarded Special Prize of £8,000 at Martlesham British Government Competition.
1922 : 163 M.P.H.



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And other Foreign Governments.

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THE SUPERMARINE
Aviation Works, Ltd. Southampton, England.

and signallers, and other branches of the Service which will be trained specially to deal with enemy air squadrons.

The military authorities are determined to make these Air Defence Brigades a *corps d'elite*. All the men who are enlisted in this new "arm" will be expected to have special qualifications for the work. Already there is a nucleus of an Engineer corps composed of members of London Electrical Engineers and a force of anti-aircraft gunners is being organised, although recruiting generally for the Brigades has not been started. It has been decided to transfer one of the existing London Divisional Signal Companies to this new branch of the Territorial Army.

Further it is stated that there will be a squadron of about twelve aeroplanes to each Air Defence Brigade, and it is quite probable that this will be the beginning of a Territorial Air Force. The idea is to make the Force a purely Territorial one, and to hand the administration over to the Territorial County Associations. In this event it is understood that officers with special administrative experience of the Flying Services will join these Associations.

R.A.F. Marriage Allowance.

The Air Ministry announces that the R.A.F. is introducing a new method for the payment of marriage allowances and allotments of pay. From Oct. 5th, the present system of issuing books of allowance forms will be discontinued and postal drafts will be issued instead direct from the Air Ministry to the payee, who will obtain payment fortnightly in advance at the post office named on the draft. Identity certificates (ring papers) will no longer be used when the new method comes into operation, but payees will require to notify the Air Ministry of all changes in address.

R.A.F. SPORTS AND PASTIMES.

28 Squadron Reunion.

The 3rd Annual Reunion Dinner will be held under the auspices of the 28 Squadron Old Boys' Association on Saturday, October 7th, at Anderton's Hotel, Fleet Street, E.C.2. Assemble at 5.30 p.m.; dinner at 6 p.m. prompt. Tickets are now available at 8s. 6d. and can be obtained from the Hon. Secretary, Mr C. T. Hodges, 102, Camden Street, N.W.1.

No. 3 W.A.R.D. Dinner.

The next dinner of the officers and ex-officers who were stationed at No. 3 W.A.R.D., R.A.F., Yate, will be held on November 9th next. Those wishing to attend should communicate at once with the Hon. Secretary, Mr. T. G. Robertson, at Hazlitt House, 43 Southampton Buildings, Chancery Lane, W.C.2.

The R.A.F. Club Cricket Week.

The match between the R.A.F. Club Cricket team and the Rest of England was played at Eastbourne on September 23rd and 25th. The Rest won the toss on Saturday and were all out at half-past three for 144, Rhodes alone offering much resistance to Woolley's fine bowling. The R.A.F. Club team started well, Hobbs and Hardinge hitting up 61 runs in 40 minutes. Hobbs was out lbw. for 27. Jeacocke made 7 and Woolley 10. The bad light stopped play for the day, leaving Hardinge at 66 and P. G. H. Fender at 13.

The soft state of the ground delayed play on Monday until 13.00 hrs. and at 15.10 hrs. the R.A.F. Club were all out for 196. Hardinge, who batted steadily for 3½ hours, was bowled lbw for 97. A. H. H. Gilligan made 11, F. W. Musson 0, Geary 10, Parker 0, Waddington 4, S. L. Amor, not out, 1.

The Rest of England, going in a second time, were all out in 80 minutes for 76.

The R.A.F. Club second innings resulted in Hardinge, not out, 10, Jeacocke 7, Woolley 6, Fender, not out, 2. Total, 2 wickets, 25. The R.A.F. Club thus defeated the Rest of England by 8 wickets.

R.A.F. Golf Championships.

The R.A.F. Championship Meeting took place at Sunningdale on September 11th, 12th and 13th. The meeting began with an Inter-team Bogey Competition (under handicap) for R.A.F. Stations and the eclectic score of the three players was taken.

Details:—Netheravon "A" Team, 13 up.—Wing/Cmdr. C. H. L. Playfair (hcp. 13), S/Ldr. C. V. Parr (hcp. 10), F/Lt. A. Lucas (hcp. 8).

Farnborough, 12 up.—F/Lt. R. Whitaker (hcp. 16), F/O. P. Christoferson (hcp. 9), F/O. P. J. Farmer (hcp. 10).

Martlesham, 11 up.—F/O. J. H. Carson (hcp. 11), F/O. J. L. Preakly (hcp. 13), F/O. J. W. Wallworth (hcp. 15).

Coastal Area H.Q., 9 up; Isle of Grain, 8 up; Spittlegate, 8 up; Halton "A" Team, 7 up; Coastal Area "C" Team, 9 up, Andover, 5 up.

Bogey Individual Competition.—Two Divisions (under hcp.).—First Division: F/O. P. Christoferson (hcp. 9), 5 up; F/O. FitzGibbons (hcp. 3), 2 up. Second Division: F/O. J. H. Carson (hcp. 11), 6 up; F/Lt. C. A. Saw (hcp 14), 3 up.

Bogey Foursomes (under hcp.).—F/Lt. C. H. Hayward (plus 1) and F/O. P. J. Farmer (hcp. 10), 1 down, tied with F/Lt. H. Clark (hcp. 3) and F/Lt. R. C Meek (hcp 8), at 1 down.

The second day was devoted to a 36-holes eclectic competition against bogey, with subsidiary 18-hole competitions for first and second divisions. The best eclectic scores over 36 holes were:—

First Division.—F/Lt. C. H. Hayward (plus 1), 10 up; S/Ldr. C. B. Parr (hcp. 10), 8 up.

Second Division.—F/O. C D. Adams (hcp. 12), 7 up; S/Ldr. J. C. B. Wood (hcp. 12), 8 up.

First Division Bogey (morning).—F/Lt. C. H. Hayward (Staff College, Andover) (plus 1), 9 up; Wing/Cmdr. K. G. Brooke (hcp. 9), 3 up.

Second Division.—S/Ldr. J. C. B. Ward (hcp. 12), 4 up; F/Lt. C. Musgrave (hcp. 16), 1 up.

First Division Bogey (afternoon).—F/O P. J. Farmer (hcp. 10), 3 up; S/Ldr. J. H. Thompson (scratch) went round in 75

Second Division.—Wing/Cmdr. P. K. Wise (hcp. 12), 1 up; F/O. C. D. Adams (hcp. 12), all square.

Details of the third day were:—Championship.—F/Lt. C. H. Hayward, 78 plus 78, equals 156; S/Ldr. J. C. M Lowe, 82 plus 85, equals 167; F. D. FitzGibbons, 83 plus 86, equals 169; Wing/Cmdr. K. G. Brooke, 86 plus 91, equals 177; F/Lt. Lees, 87 plus 90, equals) 177; Wing/Cmdr. P. K. Wise, 87 plus 91, equals 178.

Best Scratch Score (18 holes).—S/Ldr Lowe, 82½

Handicap (18 holes).—First Division: Wing/Cmdr. Brooke, 86—9, equals 77. Second Division: F/Lt. R. S. M. Leslie, 87—12, equals 75.

Handicap (36 holes).—F/Lt. R Whitaker (16), 153 net; Wing/Cmdr Wise (12), 154 net.

Rollestone.

CRICKET.—On August 26th, the School of Balloon Training played the School of Artillery, Larkhill, on the Garrison Ground, Larkhill. Batting first, Balloon School scored 146, of which F/Lt. R. S. Sugden made 77, Cpl. Harbour and AC.2. March, made 17 each. The School of Artillery were dismissed for 60 runs. F/Lt. R. S. Sugden taking four wickets for 22 runs, F/O. Thomas two wickets for 22 runs, and AC. Hill two wickets for 10 runs.

On September 6th, the School played RA. Surrey Co., Larkhill, at home. The Survey Co. batted first, making 52 runs. F/Lt. R. S. Sugden three wickets for 15 runs, and AC.2. Bray, seven wickets for 35 runs. The School made 72 runs, of which F/Lt. R. S. Sugden made 27 and AC.2. Bray 15, AC.2s. Mason and Ockwell made 10 each.

PERSONAL NOTICES.

ENGAGEMENTS.

DAVIES—O'CONNOR.—A marriage has been arranged between Mr. Idris Meredyth Davies (late Capt., Welch Regt. and R.A.F.), elder son of Mr. Timothy Davies, J.P., and Mrs. Davies, of Alltyferin, Carmarthenshire, and Gwendoline, daughter of Mr and Mrs. Maurice B. O'Connor, of Ballygunge, Calcutta.

HANCOCK—LENAERTS.—The engagement is announced between George Arthur Donne Hancock (late Capt., R.A.F.), eldest son of Mr. and Mrs. George Donne Hancock, Westcroft, Exmouth, and Joséphа Laure Maria Lenaerts, of Brussels.

MARRIAGE.

WALLER—WATERLOW.—On Sept. 14th, at St. Thomas-on-the-Bourne, Farnham, Surrey, Claude, only son of the late Frederick Waller and Mrs Waller, Prince of Wales Mansions, S.W., to Joan, widow of the late Lieut.-Col. and Wing/Cmdr C. M. Waterlow, R.E., R.N.A.S., and younger daughter of Mr and Mrs. J. H. Clare, of Farnham, Surrey.



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ABBREVIATIONS:—A.D.—Aircraft Disposal Co. B.A. Berkshire Aviation Co. B.C.—Bristol Aeroplane Co. C.A.—Department of Civil Aviation. D.A.—Daimler Airway. D.H.—De Havilland Aircraft Co. G.E.—Compagnie des Grands Express Aeriens. H.P.—Handley Page Transport Ltd. I.L.—Instone Air Line. K.L.—Koninklijke Luchtvaart Maatschappij. L.A.—Leatherhead Aviation Services. M.A.—Messageries Aeriennes. M.W.—Marconi Wireless Telegraph Co. Ltd. P.O.—Privately owned. W.A.—Westland Aircraft. S.F.—Surrey Flying Services. S.N.—Belgian transport company.

ANALYSIS OF FIGURES.

FOR WEEK ENDING SEPT. 24th.

Number of trips made during week.—I.L. 19, H.P. 11, D.A. 17, M.A. 25, G.E. 10, K.L. 12, D.H. 2, S.N. 2.

Number of passengers carried.—I.L. 96, H.P. 76, D.A. 66, M.A. 28, G.E. 52, K.L. 17, D.H. 1, S.N. 1

Total number of trips by British machines: 49, carrying 239 passengers.

Total number of trips by foreign machines: 49, carrying 98 passengers.

Trips per day.—Monday, 22; Tuesday, 8; Wednesday, 16; Thursday, 15; Friday, 14; Saturday, 20; Sunday, 3.

STATISTICS.

Machines, 98; Passengers, 337; Crews, 164; Total Personnel, 501.

Corresponding week last year:—

Machines, 66; Passengers, 154; Crews, 84; Total Personnel, 238.

Corresponding week, 1920:—

Machines, 100; Passengers, 261; Crews, 123; Total Personnel, 384.

NOTES OF THE WEEK.

On Monday last week, for the Aircraft Disposal Company, Mr. Perry left for Dublin on a Bristol "Fighter." He was held up at Shotwick for some considerable time owing to bad weather. He managed to get away from there, however, on Thursday at 15.30 hours, and arrived at Baldonnel at 17.30 hours, but as all the telegraph wires near Dublin were cut it was impossible to communicate with anybody. He was therefore reported missing by the R.A.F. Communication Squadron at Collinstown, who also promptly advised the senior naval officers at Kingstown. The Air Ministry on this side kept continuously in touch with Major Grant at the Aircraft Disposal Company, and finally about midnight on Thursday relieved his anxiety by letting him know that the machine had arrived safely. This was nearly 24 hours before he heard officially from the usual sources.

On Wednesday Mr. Piercey was testing a Bristol "Fighter," as was also Captain Stocken. Later on in the evening Captain Stocken was doing some very pretty flying on the King's Cup D.H.9a with the Rolls-Royce engine. After doing some full speeds up and down he throttled right back, and came along at a very low speed, after which he executed some "split-air" turns full out. The next day he was testing two "Tinsydes." At the same time Mr. Piercey was testing a Bristol "Fighter," which Captain Stocken took to Brussels the following day.

On Monday of this week the Instone Air Line ran their last machine outwards to Paris. From now onwards they will concentrate exclusively on the Bruxelles line, and next Monday they will open the line through to Köln.

Last week a passenger who had booked through to Paris by the Instone Line was just about to embark in the machine when he was detained, and later arrested for Income Tax frauds. This is a very good testimony to the vigilance of the excellent C.I.D. representatives at the aerodrome, of whom three or four are maintained. Evidently Scotland Yard knows quite a lot about aviation and aviators.

On Saturday among the Instone passengers was Major (?) Gervais and Mrs. Gervais, who was until recently Miss Bevan. This seems a case of following in father's footsteps, so far as air travel is concerned.

Handley Page Transport, Ltd. will, as soon as they have the monopoly of the Paris route, make arrangements to double their present fleet of machines. It also seems probable that Handley Page Transport, Ltd., will not be the only firm using W.8bs next year. The S.A.B.C.A., who have replaced the S.N.E.T.A. as the Belgian transport company, provided that a scheme which is now before the Belgian Government is duly approved, will use W.8bs on all their services next year. This is the result of the favourable impression created by the machine that Mr. McIntosh and Major Foot flew successfully in the Brussels meeting a few weeks ago.

Mr. Hinchliffe, on the Daimler Airway's D.H.34, completed on Saturday evening the return trip to Berlin, which started on the Friday of the previous week. Colonel Searle and the General Manager of the Daimler Airway, who were passengers in the machine, spent several days in Berlin negotiating with the Deutsch Luft Reederei representatives, with a view to coming to some arrangement for the operation of the London-Berlin service. It will be remembered that under the Treaty of Versailles, though the Germans are not allowed to fly machines of more than certain limited h.p., allied machines of any h.p. are free to come and go over German soil until the end of 1922. After that, however, Germany can impose her own restrictions and has accordingly stated that if she may not fly machines of more than that h.p. after that date nobody else shall either.

This of course completely "spike-bozzles" any air lines run by anyone to any part of Germany outside the occupied area. The whole situation is really very amusing and reminds one very much of the case of the man who dug a deep pit for his enemies and was himself the first person to fall into it. However, it is hoped that these regulations can be altered to the mutual advantage of all concerned.

It seems that the net result will probably be a working agreement between the Daimler Airway and the Deutsch Luft Reederei, both of whom will work in with the K.L.M. The latter are not in any way trying to compete against the Daimler Airway; they will rather work in conjunction with them, and extend on to Copenhagen as well so that the three firms will form a sort of network of air routes connecting the capitals of Northern Europe. K.L.M. will operate through the winter this year on the Amsterdam route.

Mr. Leverton has been over to Rotterdam during the week, and he tells one that the I.C.A.R. meeting was highly successful. He tells of one rather amusing incident when a Dutch pilot was stunting on a Fokker. This pilot continued looping right down to the ground, and finally coming out of his last loop he knocked his undercarriage right off. Not letting this deter him in any way he carried on flying for some minutes, having satisfied himself that the machine was intact barring the mischance of a missing undercarriage, and finally made a slow landing on the fuselage of the machine causing practically no damage whatever!

A new D.H.34 has now been delivered to the Air Ministry, so that they now hold two of these machines and the Napier Bristol 10-seater for any firm requiring new machines.

The Surrey Flying Services have acquired the Ducal D.H.9, which Mr. Muir flew in the King's Cup Race. It is to be used for special trips. On Wednesday last week Mr. Muir had out the Royal Aero Club Avro G-EAYB, on which Mr. Chapell performed into the ground on Aerial Derby Day. The machine has been rebuilt, and Mr. Muir rolled, looped, and spun it with great aplomb. On Friday he went to Penshurst late in the evening, and had great difficulty in finding his way in the fog and darkness. However, after wandering about a bit he got back to the aerodrome safely, and was busy on Sunday carrying joy-riders.

On Friday Mr. Wigglesworth arrived from Ostend on the King's Cup "Vulcan." He is to take two of these machines out to Australia for a transport company there, and is for the moment putting in time on this type.

Mr. Sahnovski, who was well-known last year as a S.N.E.T.A. pilot, came over on the old S.N.E.T.A. D.H.9 O-BEAU on a special trip.—G. D.

A FINE PERFORMANCE.

In connection with the recent fisticuffs bout between two boxers, one white and one coloured, Mr. A. J. Cobham and a D.H.9 carried out a very excellent flight conveying photographs of the contest for a London illustrated daily paper from Paris to London.

The weather on Sunday was of indescribable quality for flying, with the result that only one machine got through on the cross-Channel services.

In spite of this, Mr. Cobham left Stag Lane at 13.45 hours and arrived at Le Bourgét at 16.00 hours, having flown most of the way completely out of sight of sea and land. The Channel was crossed at an average height of 75 feet, and on the whole the journey was most unpleasant.

It was arranged that the return flight should be begun at 17.00 o'clock, but owing to some delay the machine did not get away until 17.45 o'clock. The prospects looked pretty hopeless, but Mr. Cobham decided to make an attempt to get through.

Weather conditions got gradually worse as the journey progressed and over Abbeville it was impossible to see a thing owing to rain, mist, fog, low cloud, and the approaching dusk. Berck lighthouse was picked up very faintly and then the very powerful Cape Grisnez light was seen flickering in the mist. This was left behind and Mr. Cobham decided to make an attempt to reach the coast and if this was impossible to return to the Grisnez light and make a landing as best possible.

Just when things looked like defeating him, it being quite dark by now, he picked up Dungeness light. Owing to having no compass and a certain amount of drift, he had got off his course somewhat, but when over Redhill he picked up Tatsfield aerial lighthouse and at 22.15 hours landed at Croydon.

It was a splendid piece of work, and the feat enabled the newspaper in question to effect what is known in journalese as a "scoop." His fight with the elements certainly deserves considerably more publicity than the ridiculous affair that was the cause thereof

Brooklands.

A Mr. E. A. D. Eldridge of Hampstead, a driver of racing cars, and his mechanic Mr. J. Ames were concerned in a crash at Brooklands on September 21st on an aged B.E.2c. which he had purchased from Mr. Le Champion. Though, so far as one can gather, he does not possess an R.A.C. certificate, Mr. Eldridge flew the machine during the morning with Mr. Ames as passenger. He had made one or two short flights, and had landed successfully after each one.

At about noon he took off and flew around, and when only 100 to 150 ft. above the sheds at the Byfleet end he apparently attempted a climbing turn at a very low speed. Naturally the machine stalled and then put its nose down and crashed just inside the aerodrome on the Cobham side. Very fortunately for him Mr. Eldridge was practically unhurt but Mr. Ames received severe injuries to his legs, and had to be taken to the Weybridge Cottage Hospital. The machine was completely "written off." Thus does fortune favour the brave!—J. F. S.

Glastonbury.

On Tuesday the Berks Aviation Company, Ltd., concluded their visit here at Actis Meadow. Business has been fairly brisk when the weather has allowed, and on Monday (for fair day) 65 passengers were carried. Messrs. Taylor, Woods, and Holmes flew over to Filton on Sept. 9th, to witness the machines arriving in the race for the King's Cup and met several old acquaintances. They returned to Glastonbury later in the day and carried several passengers during the same evening.

The B.A. Company left for Chepstow on Tuesday, and afterwards move on to Gloucester for the famous Barton Fair. This will be their third visit to Gloucester and to celebrate the event a merry evening has been arranged at the Monks' Retreat, where all old friends will be welcomed on Saturday, October 7th, at 17.59 sharp!

A LONG TOUR.

The De Havilland Aeroplane Hire Service once again have completed a long tour to schedule, with Mr. C. D. Barnard as pilot, a D.H.9c (Siddeley "Puma" engine) as machine, with two Americans, Mr. Ziegler and Mr. Curry Watson, as passengers. They left Stag Lane on August 30th. The first flight was London-Paris-Strasbourg, which occupied 5 hours 50 mins., and the following day the flight was continued *via* Prague to Vienna in 6 hours 5 mins. After a halt of two days at Vienna they continued over the Austrian Tyrol to Trieste in 3 hours 10 mins. The passengers spent two days in Trieste, and on the third day they rose again, and flew quickly to Lyons (stopping only at Turin) in 6 hours 5 mins. From Turin to Lyons a direct route across the Alps was taken, passing through the Chanberg Pass. On the last day they flew to Paris in 3 hours 50 mins., and continued on to London in 2 hours 25 mins. On no occasion did the machine or engine require any attention whatever.

THE DETROIT MEETING.

From October 7th—14th, a large National Air Meeting will take place at Detroit, Mich., during the course of which the annual Pulitzer Trophy race and the Curtiss Marine Trophy race will take place. The outstanding feature of this meeting is the large entry list from the U.S. Army and Navy Air Services.

The Chief of the U.S. Army Air Service has approved of a list of 32 army aircraft as follows: Race for Large-Capacity, Multi-engined Aircraft—One L.W.F. "Owl," four Martin bombers, one Martin "Transport": Race for Light Commercial Aircraft—One Fokker Transport, one D.H.4b: Race for Observation Two-Seater Aircraft—Four D.H.4bs, two Le Pére, two X.B.1as: Pulitzer Trophy Race—One Verville Packard V.C.P.1, two Curtiss racers, two Loening racers, two Thomas-Morse racers, three Sperry racers, six Thomas-Morse M.B.3s.

A list of pilots has been approved to fly these machines which includes one alternate pilot for each machine.

The U.S. Navy will be represented in the Pulitzer and Marine Trophy races, and a training camp for the 11 pilots chosen has been established at the Anacostia Naval Air Station.

The above details show that the U.S. Air Services fully appreciate the great value of aeroplane racing in developing new types of aircraft.—L.B.

[It is understood that it is the intention of the Air Ministry to assist somewhat similarly in British air racing next year.—Ed.]

THE PARIS AERO SHOW, 1922.

The French Aeronautical Chamber of Commerce announces that the Aero Show will be held at the Grand Palais from December 15th, 1922, to January 2nd, 1923, and that entries should be sent to "La Chambre Syndicale des Industries Aéronautiques," 9, Rue Anatole de la Forge, Paris.



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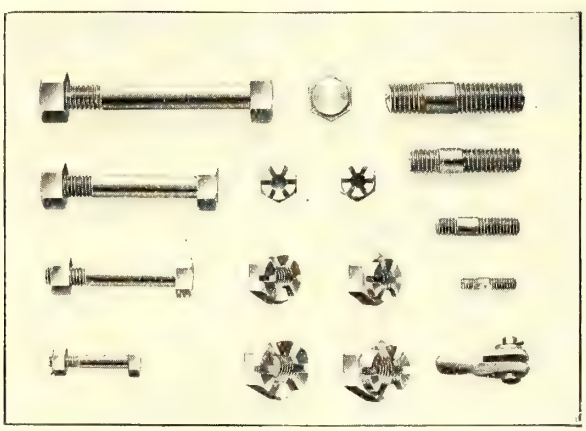
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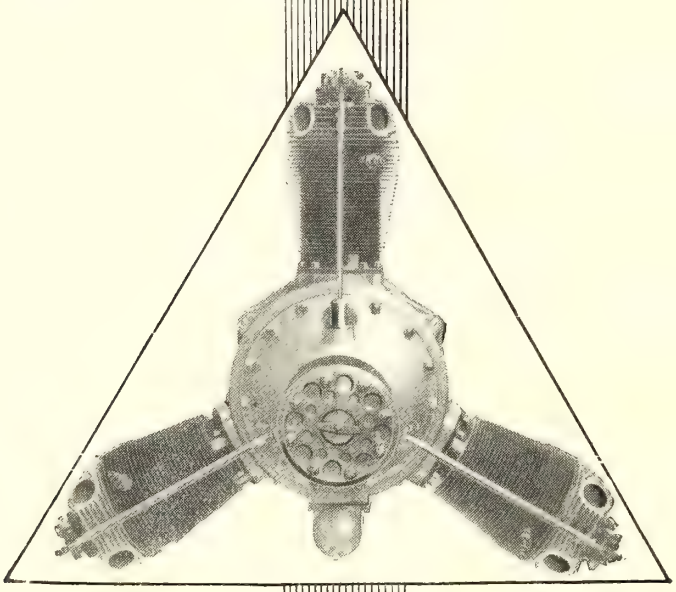


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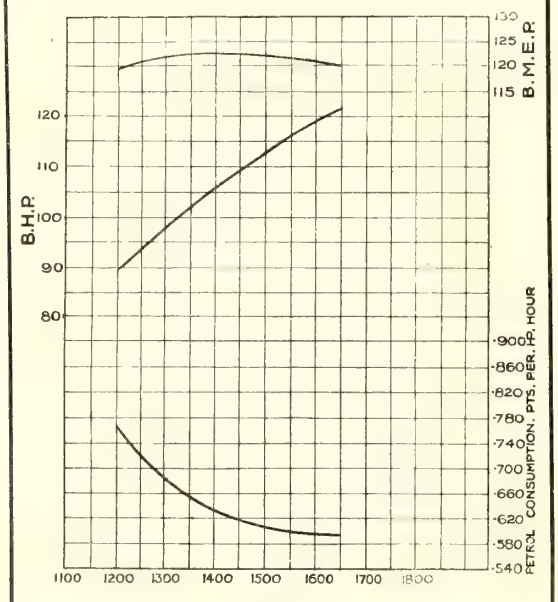
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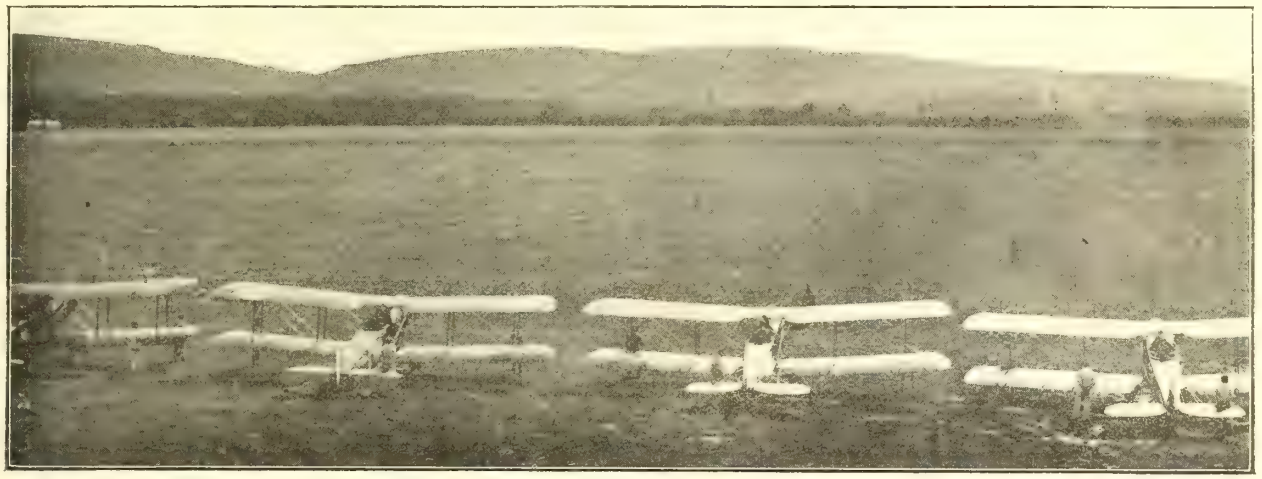
THE AEROPLANE

Edited by C. G. Grey

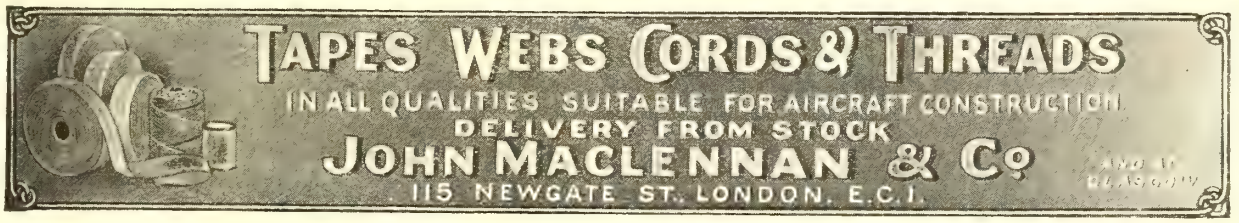
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IN THE FREE STATE.



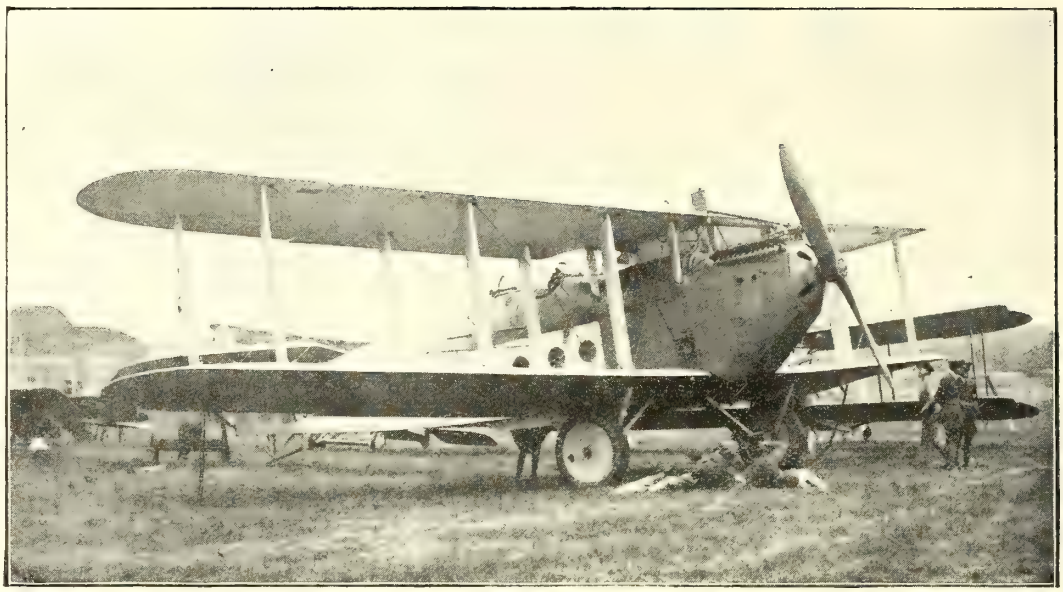
AT BALDONNEL: Bristol fighters (Rolls Royce engines) of the R.A.F. out for inspection at what may be called the Dublin Terminal Aerodrome.





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ON THE DEUTSCH CUP DISGRACE.

The Cause of Failure.

There is unfortunately nothing unusual about England losing a big International Race, either on land or water or in the air. Once in a while we win something for a change, as when Mr. Pixton won the Schneider Cup at Monaco and as when Mr. Biard again won it at Naples this year. And when we lose there is generally a perfectly good reason. Either something goes wrong which should not go wrong, or else our machines are simply not fast enough.

In motoring we have generally suffered from lack of competent drivers. After Mr. Moore-Brabazon, Mr. Lee-Guinness and Mr. Warwick Wright drove Minervas in the Circuit des Ardennes we did little till lately when Mr. Lee-Guinness and Major Segrave put up fine performances on Sunbeams. But in flying whenever we have failed hitherto it has not been for lack of competent pilots. When Mr. Raynham lost the Gordon-Bennett Cup an oil-pipe joint gave way on his Hispano-Suiza engine. Last year when Mr. James lost the Deutsch Cup the fabric on his upper planes began to part company from its ribs.

This year the Deutsch Cup was a gift for England and we lost it simply and solely through the fault of the pilot. Nobody doubts Mr. James' ability as an aviator. Anyone who has seen him fly the Mars I., commonly known as "The Bamel," must acknowledge that with perhaps the exception of Mr. Raynham and Mr. Frank Courtney there is hardly a pilot in England who could be relied upon to handle a machine of such speed with such skill and address. There must of course be many who could do so but there are few of sufficient known experience to be trusted with such a machine by its makers. It is therefore the more to be regretted that he should have lost the Deutsch Cup not through lack of skill as an aviator but through his own admitted disability as a pilot.

As this is the main point of interest about the competition it seems well to tell here exactly what happened.

The Deutsch Cup Course.

The Deutsch Cup course is a straight 50 kilometres, about due south, from the starting point at Ville-Sauvage aerodrome on the east side of the Etampes-Orleans road to the turning point a little to the west of the same road. The road itself curves a little to the west and back again, so that at one point the straight course is a kilometre or two away from the road to the east of it. The road is the only north and south main road for ten miles or more on either side and is quite unmistakable.

Where the straight course is intersected by the curve of the road, about 40 kilometres from the start, there is an unmistakable landmark. The main line to the south crosses the road and to get over it the road makes a big Z turn. This junction is plainly to be seen for miles. Just beyond it is a wood and a big farm-chateau place which gives a line to the turning point, where there was a pylon of sorts and a smoke-fire was supposed to be kept burning.

The Map Question.

Why any pilot who had ever been considered competent to fly a training machine out of sight of an aerodrome should want a map for such a clearly marked course entirely passes one's comprehension, especially as the total length is only 30 miles. One does not profess to have any experience of cross-country flying, but one can at least claim that on the solitary occasion on which one flew from London to Paris and back one was never for a moment lost as to the exact location of the machine though the view was limited to that seen through the cabin-windows of a Handley Page and though one had never seen any part of the route from the air and only knew the route from memory of staff maps seen during the war. Therefore one fails utterly to understand how anybody who had once seen a map of the Deutsch Cup course could lose his way if within five miles of either side of it on a clear day. And, be it remembered, Mr. James had flown over the course at least four times last year.

A Previous Cross-Country Experience.

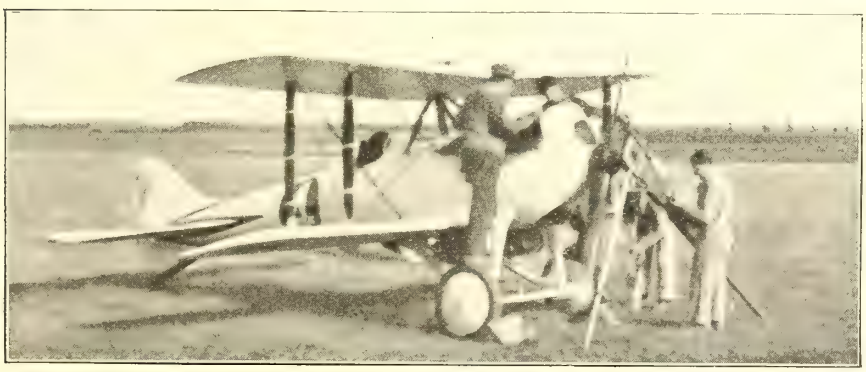
But it is well to recall that when Mr. James flew to France in 1920 on the "Goshawk" and arrived too late for Mr. Tait-Cox to fly the machine in the Gordon-Bennett Race he had to make several forced landings between London and Paris and Etampes to ask his way. To have made so many landings on a racing machine without mishap was proof of his skill as an aviator, but to have been compelled to make them was sufficient proof that he lacks that ability to find his way across country which in some pilots is so marked as to appear to amount to an instinct. It is admitted that he kept a very true course in two Aerial Derby races but that would seem to be the result of practice over the course and of properly fixed maps.

He started to fly to Etampes on Wednesday last on a "Sparrowhawk" but damaged the tail-skid and rudder and the end of the fuselage in getting off at Croydon. He flew to Lympne and left the machine there, going on by train to Paris and Etampes. Consequently he had no machine on which to fly over the course before the race, as the Bamel was not ready to fly till the morning of the race itself and only a short trial spin was possible. Still, even so one cannot see why a quiet little tour at half-throttle should not have been made to the turning point and back.

The Apparent Cause.

Mr. James apparently did not trust his memory, of his trips over the course last year and slung two maps mounted on ply-wood, each about 6 in. × 3 in., round his neck by a stout piece of string. One was a map of the complete course and the other was a larger scale map of the area immediately round the turning point. Apparently as he was going down the course on the first lap these maps somehow lifted out of the cock-pit and streamed out behind him, pulling so hard that the string nearly choked him.

He released the string from his throat and let the maps go. And it seems that by the time they were quite gone either



THE WINNER.—M. Fernand Lasne's Nieuport biplane (320 h.p. Hispano-Suiza engine) which won the Deutsch Cup. It is the same old machine on which M. Sadi Lecointe won the last Gordon-Bennett Race in 1920. Practically no alterations have been made in it except that the paint is prettier. The apparatus in front is an Odier self-starter which works with the force and regularity of a "fougasse."

he had lost his way to such an extent that he could not get back onto the course or else he had lost confidence to such an extent in his own ability to follow the course that the only thing he could do was to come back and land. Which he proceeded to do along the exact line on which he would have come in if he had flown an impeccable course to the turning point and back. So he cannot have been far off the right course in any case.

The Usual Rumours.

When he landed the usual crop of rumours floated round. The French still believe that the Bamel's landing last year was caused by a defective engine, because they heard the Napier crackling as she flew in with the throttle closed, so this year some people naturally blamed the engine. Others, who remembered the incident of the detaching fabric of last year started the rumour that the machine had begun to decompose in the air.

Others, who perhaps had heard that Mr. James had said, as he did, that the "Bamel" was not as pleasant to fly with the new wings as with the old ones, started the yarn that, as the French say, "he had fear of the apparatus."

The string-strangling story seemed on the face of it so improbable to those who understood anything about flying that probably most people in France regard it as an excuse and not as a reason, and think that it is only another dodge of *perfide Albion* to cover something about the machine.

The Real Disgrace.

Personally one accepts the story as being absolutely true. As a reason it is far worse than it would be if it were only an excuse.

The Napier engine and the Gloucestershire Company's machine were perfect, and were much faster than Lasne's winning Nieuport. In fact one believes that they were faster than the "Sesquiplan" on which M. Sadi-Lecointe did his record kilometre and 100 kilometres. And one's personal opinion, from which other people may perhaps differ, is that it is a far greater disgrace to British Aviation to be beaten because our representative pilot could not fly a straight 30-mile course without a map than it would have been to be beaten because our machine was too slow or because it developed some mechanical defect.

It is to be hoped that if ever again a solitary British representative should be sent to represent the Royal Aero Club in a great International event care will be taken that we select to handle our machine a man who is a first-class pilot besides being merely an aviator, even if of the highest possible ability in his own line of business.

Deserved Sympathy.

The deepest sympathy is due to Mr. Martyn and Longden, of the Gloucestershire Company and to the four engineers who went to Etampes with the "Bamel." The Gloucestershire Co. have spent tens of thousands of pounds in the past two years on demonstrating that we in England can build a racing aeroplane of the first class. The Bamel to-day is the only British aeroplane which has proved itself to be in the same category as the French and Italian speed machines. This year the Blue Ribbon of air speed was definitely in the firm's grasp and it has been lost by the unforgivable fault of an aviator.

Great as is their disappointment it cannot be greater than that of Messrs. Turner and Trenhaile, of the Gloucester Co., and Messrs. Woodgate and Smith, of Napiers, the men who brought the machine out from England and put it together in such fine form. Owing to delays at the Boulogne Docks they had to drive day and night with the machine in a couple of rattle-trap French lorries over the vilest of French roads to get to Etampes in time. A drunken French driver from Boulogne on one of the lorries nearly wrecked the outfit, so the two on that lorry had to take over from him and drive through the first night themselves over strange roads as part of a 24-hours' non-stop run. Then when they reached Etampes they worked and watched turn and turn about night and day. And so they produced the machine and engine on the Friday fit to fly for anybody's life. Yet all their labour and work and weariness has gone for nothing because they were let down by the man for whom they slaved so loyally.

It is a truly lamentable story, happily unique in the history of the sport of flying in ths country. It is only to be hoped that it may never be repeated. We have had another of those lessons which ought to do us no end of good. Let us profit by it.

The French Eliminatory Tests.

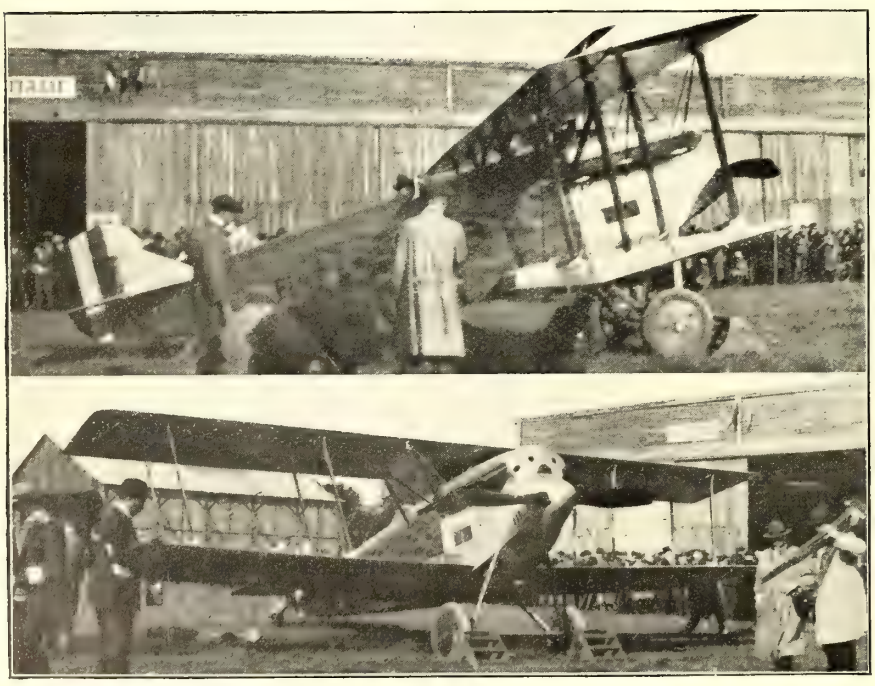
That being that we may now proceed to the story of the competition as a whole, an affair without much incident, though not without humour.

On arriving at the Ville-Sauvage aerodrome, which is some 8 to 10 kilometres south of Etampes, the day before the race it was found that the French team had been selected without any eliminatory trials—or illuminatory trials, as G. D. insisted on calling them with an imagination inspired by visions of crashed aeroplanes in flames. Madon had crashed the tail-less "Simplex" monoplane some days before and had hurt himself rather badly. The latest Nieuport freak, a cantilever monoplane alleged to have a 400 h.p. Wright-Hispano engine, refused to get off the ground. M. Sadi-Lecointe told one that it was ready too late and was not *au point*. M. Nungesser's privately-owned and built machine was eliminated by the very simple process of refusing to let it fly on the grounds that it had not been granted an airworthiness certificate by the French Government: as if that mattered, considering that all Deutsch Cup machines must be unsafe to fly until a slow-speed test is instituted. From which one gathers that M. Nungesser is not now so much the popular hero as he was when he was killing Huns as one of the French star turns during the war. That left the two Nieuports—last year's "Sesquiplan" and the 1920 winner (a biplane)—and a Blériot-Herbemont, with everything cut up nicely between the two big firms as usual.

The French Machines.

A word about the machines may be useful at this point. The "Simplex" was a monoplane version of the tailless biplane which M. Madon has been flying successfully of late. This quaint machine has a streamlined fuselage with a rudder, but without tailplane or elevator. Vertical control is obtained by means of the ailerons only, both being used together like Fairey flaps, for elevator control. The chord of the wings is enormous and so the thing works as a biplane, but as a monoplane the vertical control was not enough to stop the machine from "porpoising" when getting up speed on the ground. The result was fairly obvious. She simply stood on her head at something approaching 100 m.p.hr. It was certainly "so simple," as the advertisements say.

As a matter of fact the whole idea is wrong. After all a bird isn't altogether a fool and there is much more to be said for the bird's idea of a horizontal tail without a rudder than for a tail-less machine with a rudder. The "Simplex" scheme would seem to have been



Signor Brack-Papa's Fiat (with 700 h.p. Fiat engine). Its workmanship and aerodynamic qualities possess all the beauties of a Maurice Farman.

evolved by some wind-tunnel expert who knew little or nothing of flying.

The new Nieuport is a cantilever monoplane in which the pilot sits in the nose right on top of the engine, so the body has about the proportions of a Vickers "Vulcan" on a smaller scale, with the difference that the airscrew sticks out of the lower part of the beast's chest. The wheel-axle is streamlined by a plane which sticks out in front of the wheels and for some way on each side of the hubs, so that it is bigger than the "something-less-than-a-half" plane of the "Sesquiplan" but because it is not cambered on top and flat below presumably it is not reckoned as a "plan." So far as one can see the machine is not likely to fly till it has been altered considerably.

Last year's winner, the "Sesquiplan," has had one of the new 400 h.p. Hispano-Suiza engines fitted and new wings. M. Delage has apparently taken a hint from Mr. Folland, or else from Capt. Martin, U.S.A., for the new wings have nearly as heavy a camber on their lower surfaces as on the top, so that while retaining a good camber on the top for slow flying they are a nearly perfect streamline when flying horizontally.

The other Nieuport was the winner in 1920, one of the neat little "Type 29" biplanes which are now the standard fighting machine of the French Army and certainly the best single-seat fighter (as standardised) in the world at the moment. She also had been cleaned-up and had a "boosted" engine.

The Blériot-Herbemont is yet another modification of M. Herbemont's pet biplane design. She looks just like one of the cross-Channel Spads but that she is a single-seater and has a 400 h.p. Lorraine-Dietrich engine. She is intended for a single-seat fighter to supersede the Type 29 Nieuport. She is quite pretty, like all M. Herbemont's designs, but does not seem abnormally fast even for a fighting machine.

The Foreign Machines.

The only foreign machine besides the "Bamel" was Signor Brack-Papa's Fiat, a well-made but entirely uninspired machine. She is just a mass of struts and wires built round a 700 h.p. Fiat engine. The insuppressible G. D. called her an "animated Maurice Farman," which describes the machine about as well as is necessary. She gets her speed by sheer brute force and certainly not because the aeroplane is fast. One would like to see Signor Brack-Papa on a machine with the same engine designed by one of the Savoia or Macchi people who do know how to design for speed.

The "Bamel" is as hitherto, with minor alterations. She has a single Lamblin radiator, which gives the same surface as the two on the Nieuport, which are designed to absorb together the superfluous heat of a 300 h.p. Hispano. When one told Mr. Lamblin that the Napier was giving 560 h.p. or thereabouts, he was gravely concerned, but admitted that the terrific speed might do the needful. Which is just like M. Lamblin, who, though full of faith in his products, is far too honest to be super-optimistic or to leave anything to chance. Incidentally he was the salvation of the "Bamel," for when repeated orders and requests to oil firms for a supply of benzol to mix with the "Lion's" petrol had failed, M. Lamblin set off in his car and got it himself. He is indeed a friend in need when British aviators are in France.

The wing modification to the "Bamel" is not great. The area is the same but the section has been reduced except at the main ribs to which the interplane struts are fixed. These bulge out top and bottom, and must have a very deleterious effect in that they must upset the even flow of air over and under the planes. Also the other ribs and riblets seem to stick out more than need be and give the impression that the new wings have been built in a hurry, which seems quite probable.

Personally one believes that with a few more alterations it ought to be possible to get another 10 or 12 m.p.h. out of the "Bamel," with her engine in its present state. It is a pity that she has never yet been tuned up and sent out for the world's records which are evidently within her grasp.

Record-Making.

Apropos of records, somebody who saw certain French records made the other day says that the pilot deliberately dived to the starting line of the measured kilometre in each direction every time, and so carried the momentum of his dive right over the measured distance. If Martlesham Heath wants to be really useful and informative one would like it to try some experiments in these methods. It might take a known fast machine, say a "Siskin," and let the pilot dive to the starting line, and then hold the machine flat. After that he might do straight speed tests as we understand them in this country. And after that he might try diving to a line a kilometre before the measuring line to see whether the momentum would carry over for more than a kilometre. Finally, he might try diving with full throttle to the kilometre line and then switching right off and sliding along the measured kilometre by momentum alone.

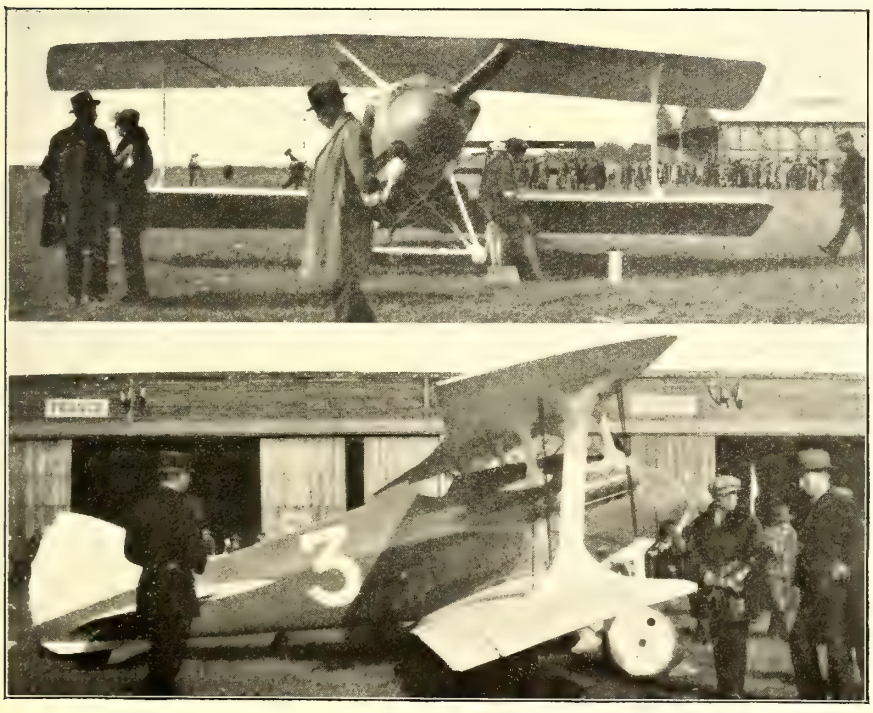
Then we should have some reliable data by which to estimate French record times. One does not for a moment doubt the accuracy of French timing. Probably their measuring arrangements are quite as good as ours. But one does think that their records are permitted to be made under somewhat more favourable conditions than are ours.

Official Methods.

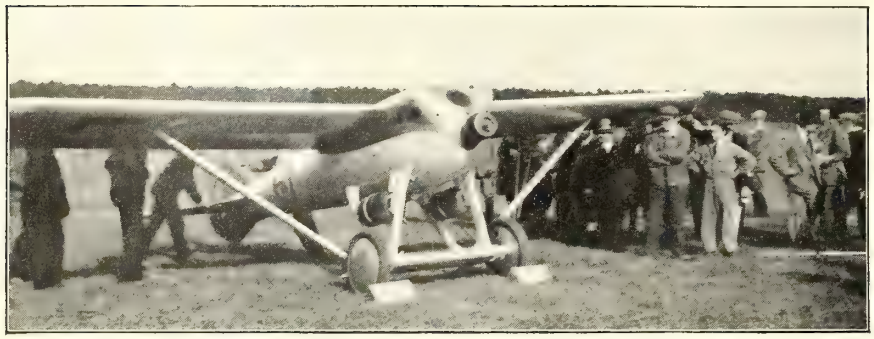
That evening on returning to Paris one had another example of those peculiar methods of French aero clubs and other governing bodies, such as that which runs the French Aero Show, which so endears them to foreign visitors. Warned by the experience of former years, and advised by a friend in Paris one went to the Aero Club de France to ask for a "brassard" or armlet which would admit one to the course next day. A charming lady in the office said that brassards were unnecessary, that they had not any brassards at the Aero Club, and that nobody had had any brassards at the Aero Club.

One pointed out to her that a certain friend had in fact had a brassard given to him by her in that office a day or two before. But the lady still stuck to the story that there were no brassards and that they were not needed. Consequently when our party arrived at Ville-Sauvage next day one was forced, as usual, to waste half-an-hour or so trying to find Mr. Perrin of the Royal Aero Club who alone has sufficient influence with the Aero Club de France to get anything done for English newspaper people.

Apparently the Aero Club de France cares as little for the English technical press as do the people who run the French Aero Show. Our Royal Aero Club people may make idiotic mistakes in their own affairs but at any rate they are considerate and polite. There is much in Captain Sayers' epigram to the effect that in the hour of victory the Latin peoples are apt to forget that courtesy for which they are distinguished in less exalted moments.



M. Casale's Spad-Herbemont (400 h.p. Lorraine-Dietrich). Its strong resemblance to the cross-Channel Spads of the C.M.A. will be noticed, and balancing speed against load carried it seems to have a very similar performance. M. Casale is seen in a leather coat in each picture.



The Nieuport-Delage "Sesquiplan" (320 h.p. Hispano-Suisa engine), flown by M. Sadi-Lecointe. This machine won the Deutsch Cup last year, piloted by M. Kirch. It will be noticed that the wings have now a pronounced convexity to the lower surface in the manner shown in France by the "Bamel" last year.

The Contest Itself.

The first out on the great day, September 30th, was Casale, on the Spad-Herbemont, at 10.10.48. The Spad was noticeably slower than the other machines had appeared when on test. Casale only flew one lap, which was well under the 250 km. per hour standard, and then landed. His engine was steaming and smoking like a factory. It turned out that a screw had come loose in a radiator fitting and had let out most of the water. Nothing had gone wrong with the radiator itself; but, even so, one believes that this is the first mishap that has happened ever in connection with a Lamblin radiator.

The second competitor to get away was Brack-Papa at 10.28.40. His Fiat had not the hearty roar which was characteristic of it at Nice, and the exhaust sounded ragged. Also it belched forth clouds of black smoke, which if they indicated sufficient lubrication did certainly not signify an efficient engine. In fact, so thick was the smoke that one of the English visitors suggested that Major Savage ought to be notified of this apparent infringement of his sky-writing patents. Brack-Papa's speed was evidently high but certainly not high enough to beat the "Bamel" if she stayed the course.

Shortly after he had started Lasne went off at 10.35.35 on the 1920 Nieuport, so there were three machines in the air at once. The Nieuport had evidently about the same speed as the Fiat and her slight advantage on time as shown in the table was partly due to closer cornering, though Brack-Papa took his corners wonderfully close considering the size of his machine.

A Slight Argument.

There was considerable argument during this period as to the legality of Brack-Papa's start. Instead of crossing the starting line between the enclosure and the mark pylon—that is to say, to the west of the pylon—he passed the pylon on its east side, which was "no start." It was then argued that when he crossed the line at the end of his first lap he had made a legal start and that when he landed at the end of his third lap it would only be his second, and so he would have abandoned the race unfinished. This was countered by the argument that when he crossed the line on entering his second lap it was more than the specified half-hour after sending in his notice to start and that so the whole flight must be considered a wash-out.

The latter was the official view and so Brack-Papa was given a second flight late in the afternoon. He started at 16.37.57, passed the turning point at Gidy (which place our Mr. G. D. interpreted as a compliment to himself) in 10 min. 43 sec., and did the 100 kms. in 20 min. 58 sec., or about 15 secs. slower than his first attempt. On the second lap he landed at Mounerville through engine failure, which, it was said was due to failure of his radiators. As these are similar in general idea to the Lamblin but stuck in halves above and below the wings one can believe that the good M. Lamblin was not overcome by grief at the reported failure of what looks at first sight rather like an imitation of his particular design. However, perhaps in due course our friends of the Fiat Company will let us know what really did happen.

The Winner's Performance.

Lasne finished at about 11.37 hours and by then it was known that he had beaten Brack-Papa's time by a sufficient margin, and had also beaten Kirch's time for the 300 kms. on the "Sesquiplan" last year. Admittedly after Sadi-Lecointe's crash on the first "Sesquiplan" early that day Kirch was not going all out. Still he beat all the records put up by the biplane in 1919 so it was no mean feat for the same old 1920 biplane to beat his times in 1922. Lasne handles an aeroplane beautifully and his landing downhill with a cross wind, albeit unwise piloting as such, was a very pretty exhibition of sheer skill. He put the machine down without a bump at quite a slow speed and held her perfectly straight on the ground.

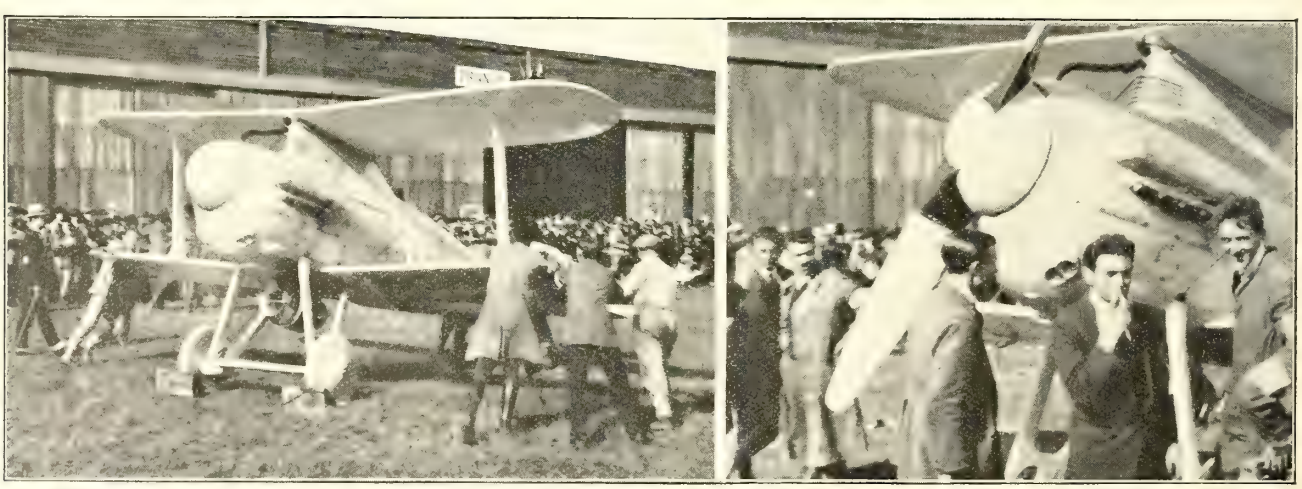
After Lasne finished everybody proceeded to feed and sleep till 14.00 hours, when interest was revived by the "Bamel" being wheeled out. It was recognised that the real contest of the day, bar accidents, was between the "Bamel" and the revised "Sesquiplan" which Sadi-Lecointe was going to fly if the "Bamel" beat Lasne's time.

England's Humiliation.

James elected to start about 14.45. He got off in his usual perfect manner uphill against the wind, did a big climbing turn to the left, and come down across the starting line, with the Napier roaring like the lion after which it is named. Its note was a joy to hear. Never had we looked so like winning the cup. Here we had a machine which was obviously faster than anything yet seen on the course, with an engine which sounded perfect and a pilot who had been over the course before and during last year's race. English hopes were higher than they had ever been. Half-jestingly, and by way of averting the evil eye one remarked to Mr. Wallace Barr as we walked across to the turning point that it would be a treat if we could for once get a machine to complete the course even if it could not win.

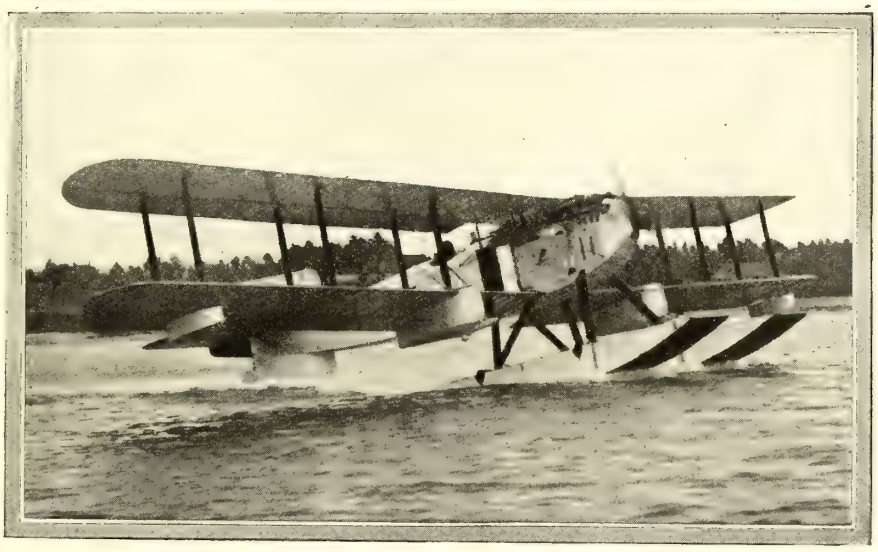
After 17 minutes the "Bamel" appeared again, dead on her course. It seemed too good to be true. Anything under 20 minutes for the lap seemed good enough to win. A lap in 19 minutes would annihilate all records. He looked like get-

(*Continued on page 277.*)



The Gloucestershire Aircraft Co.'s "Mars I.", commonly known as the "Bamel" (450 h.p. Napier "Lion" engine). On the left the engine is being run up. On the right Mr. James (with cigarette) is seen with his crew.

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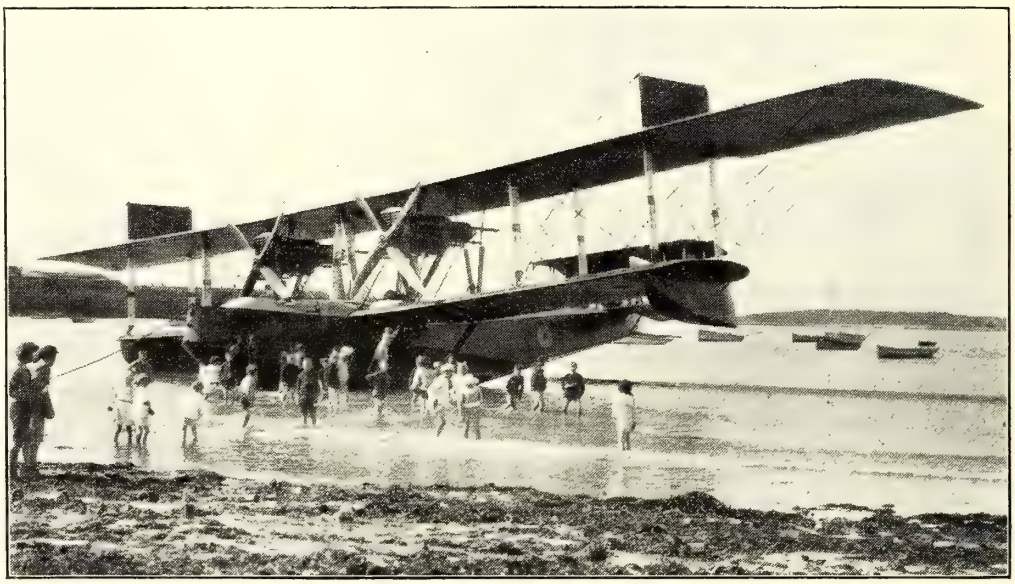
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THE WEEKLY COMMENTARY.

Captain Sayers continues below the account of things heard and seen during his visit to the Wasserkuppe.

The evidence which is given in this article seems fairly conclusive as to the overwhelming importance of the qualities of the machines employed, and a note which follows the article, dealing with the flights made by the American pilot, Allen, tends to confirm the already expressed opinion that the Wasserkuppe has no magical qualities which specially favour the making of soaring flights.

Another note deals with the successful attempts made recently at soaring over the sea. The results obtained seem to open up a new field for experiment of almost unlimited extent.

A really serious attempt to develop aviation on commercial lines is described on page 274.

A VISIT TO THE WASSERKUPPE—II.

By W. H. SAYERS.

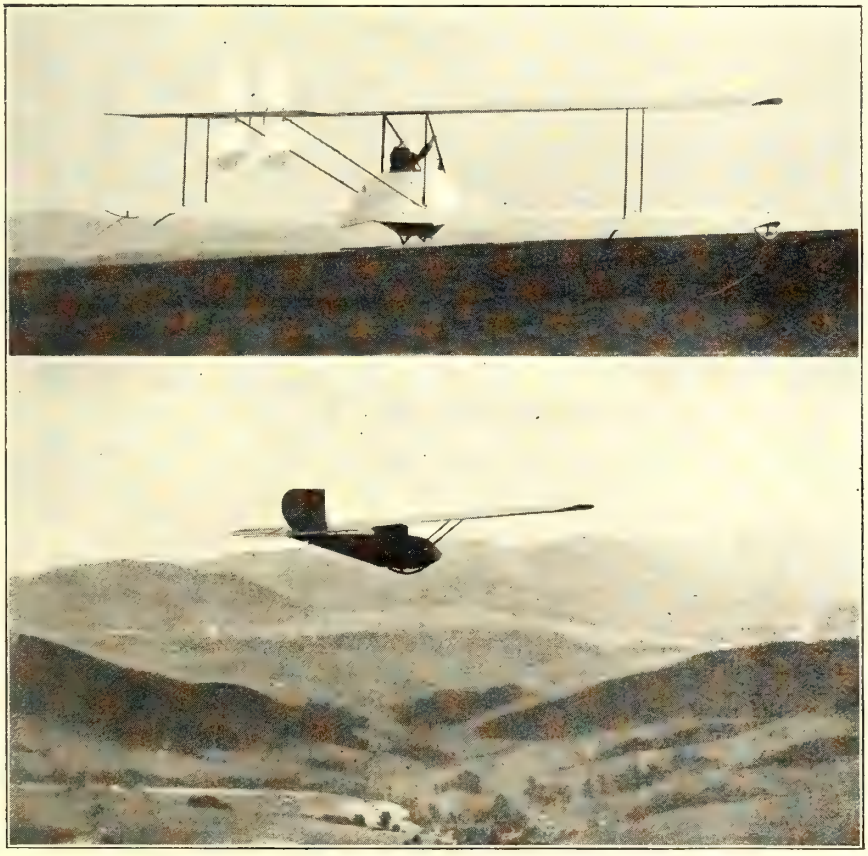
The machines which are to be found at the Wasserkuppe cover a very large range of types. There are school machines, some of them belonging to the "Weltensegler" firm, who use them to teach pupils the use of their rather curious controls, and others used by various of the clubs and technical societies which are interested in gliding for the training of their own members before they are allowed to essay real soaring.

These "school-machines" are frankly pure gliders. Many of them are biplanes—some are monoplanes—but none of them are of very particular interest. They are generally fairly lightly loaded, and not particularly clean, but are capable of quite long glides from the top of the hill under favourable conditions.

Other machines equally frankly of this type are the property of enthusiasts whose means or constructive abilities will not run to the ownership of the more highly specialised "soaring machines." Naturally there are various quaint appliances which the designers fondly believe to be real advances in design, but which do not, and obviously cannot, perform.

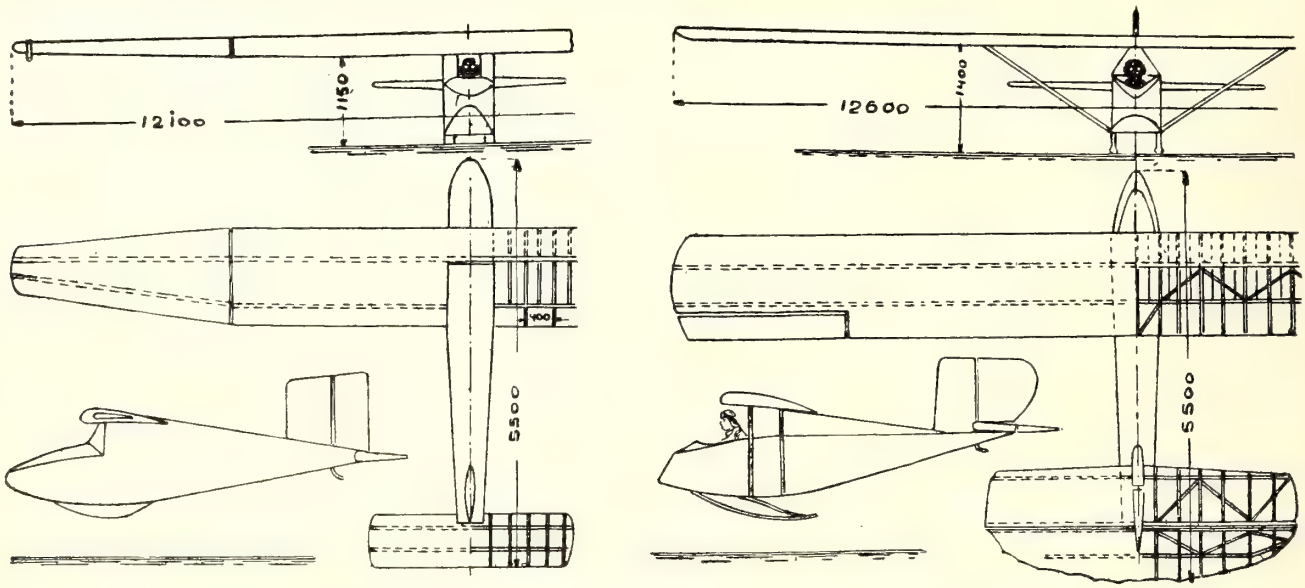
Of the machines which are to be taken seriously, the majority, as has already been stated, are perfectly straightforward cantilever monoplanes. Of these the most noteworthy are the following:—

Hannover "Vampyr"—span, 12.6 m.; length, 5.5 m.;



A CONTRAST IN TYPES.—At the top Mynheer Fokker's biplane two-seater being towed off the ground at the Wasserkuppe. The tractive effort is supplied by a motor-car (off). This machine is fitted with high lift wings very lightly loaded and has an absurdly slow rate of fall in still air. But it is not a good soaring machine.

In the lower picture the Darmstadt "Edith" (AFGD4), flown by Herr Botsch, is seen flying over the south valley from the Wasserkuppe. Much more heavily loaded than the Fokker biplane this machine has a lower rate of fall at reasonably high speeds than the Fokker and can be handled and manœuvred in stronger winds. And probably entirely for this reason it soars successfully.



The two Darmstadt monoplanes. Left, the A.F.G.D.6, and right the A.F.G.D.4 (reproduced from "Flugsport").

wing area, 16 sq. m.; weight, loaded, 200 kg. (about), loading about 12.5 kg. per sq. m. (2.6 lbs. per sq. ft.).

Hannover "Greif"—span, 11.6 m.; length 5 m.; wing area, 15 sq. m.; weight and loading not known, but loading believed to be about equal to that of "Vampyr."

Darmstadt "A.F.G.D.4" ("Edith")—span, 12.6 m.; length 5.5 m.; area, 15 sq. m.; weight loaded, 165 kg. = 11 kg. per sq. m. (2.25 lbs per sq. ft.).

Darmstadt "A.F.G.D.6"—span, 12.1 m.; length, 5.5 m.; area, 14.3 sq. m.; weight, loaded, 165 kg. = 12.2 kg. per sq. m. (2.56 lbs. per sq. ft.).

These four machines—all of the same general type and dimensions—performed well. It will be observed that they are all fairly heavily loaded. All of them have thick wings, so far as can be gathered of the section known as "Gottingen '41," which is reproduced in outline here. The only machine of the four with any curious feature is the last Darmstadt. This has wings pivoted at the front spar, so that the wing incidence on either side can be controlled by the pilot for lateral control.

The two "Hannovers" and the Darmstadt "A.F.G.D.6" have balanced elevators (Morane type), and no fixed tail plane. The Darmstadt "A.F.G.D.4" has a large fixed tail plane, and normal ailerons. All four have fixed fins, and unbalanced rudders. In all four machines the pilot is seated under the leading edge of the wing.

Another extremely interesting machine was the "Espenlaub" monoplane. Herr Gottlieb Espenlaub is by trade a working cabinetmaker, who has been infected by the enthusiasm for soaring and gliding. He appears to have abandoned his trade, and to have established himself permanently in one of the little wooden huts on top of Wasserkuppe. As the Wasserkuppe is a winter sports resort, it must require some real interest to keep him there during the winter, and there—with his own hands—and, so far as can be judged from such materials as he has been able to discover lying about, he has constructed his present machine. In general outline the machine is of Hannover "Vampyr" form. The wing, which is a pure cantilever, is of 17 m. (56 ft.) span, and the area 17 sq. m., thus giving an aspect ratio of 17 to 1. The fuselage is rectangular in section, built of timber longerons and struts, tapering to a vertical knife edge at the stern. The overall length of the body is not more than 15 ft. or so, and the machine has balanced ailerons, rudder, and tail plane, and no fixed tail surface at all.



The Göttingen wing section No. 441.

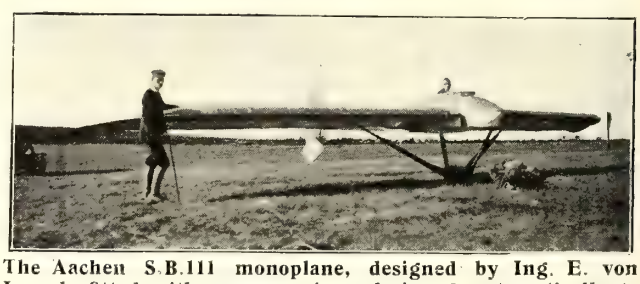
The wing section is of the type of Göttingen 441, but considerably thicker section—as a matter of fact, the wing is extremely irregular in section, doubtless owing to the grave difficulties of the circumstances under which it was built. The whole machine is covered in a very coarse fabric, "doped" with some curiously rusty-coloured paint. Altogether it looks—at first sight—as though it was a thoroughly badly-built affair. As a matter of fact, it is very soundly built; the roughness of finish is entirely due to the constructor's limited facilities and his need for using such material as he could lay hands upon.

The performance of the machine is really remarkable. It was flown in our presence by Mr. Royse, already mentioned. Mr. Royse was an American pilot during the war, and had done a good deal of cross-country work in America during the two years after the war. He had done no flying whatever for two years until the day of our arrival at Geisfeld, when he made a glide of about 800 metres on the south slope of the Wasserkuppe on this machine—mainly by way of discovering how it handled.

On the next day he decided to fly the machine again. Such wind as there was was westerly, so that flight over the favourable western face was possible. But the wind was very feeble, maximum of about 4 m.p.h., so that little in the soaring line could be expected. After the initial impetus given by the shock absorber catapult used for launching the machine stopped on the ground for some 10 yards, gaining speed owing to the slope, which was over 30 deg., when the take-off occurred at a speed somewhere round 20 m.p.h.

Actually the machine would have come off earlier, but Mr. Royse very wisely was taking no chance of stalling with a 1,000 ft. drop on to tree-tops below him. With its nose well down the machine glided out from the hill some 200 yards, dropping about 50 ft. in the process, and then, so far as could be judged, began to fly level across the valley for at least a mile. Certainly for that distance the angle between the machine and the horizon decreased, and, as Mr. Royse afterwards told us, he thought he was going to be able to cross the summit of the ridge on the opposite side of the valley with some hundreds of feet to spare. Naturally, however, he ran into a downwash on the lee of that ridge, and found he was being pushed down rapidly, so he made a 130 deg. turn, and glided out into the middle of the valley, and then south, finally landing in a field about $2\frac{3}{4}$ km. ($1\frac{3}{4}$ miles) from the Wasserkuppe, and about 1,000 ft. below the start after 3 mins. 53 secs. flight.

The actual distance traversed was about 4 km. ($2\frac{1}{2}$ miles), all either against or broadside on to the wind. Taking into account the conditions on an average the assistance given by the up-current in the first mile must have been about balanced by the down-current at the end of that distance. The apparent glide was at about 1 in 12 at a ground speed of a little over 60 km.h. (37 m.p.h.), and, allowing for the wind, the real performance must have been distinctly better. Recollecting the pilot's lack of experience in this particular



The Aachen S.B.111 monoplane, designed by Ing. E. von Loessl, fitted with sprung wings designed automatically to use gust energy according to the theory of Profs. Knöller and Betz.

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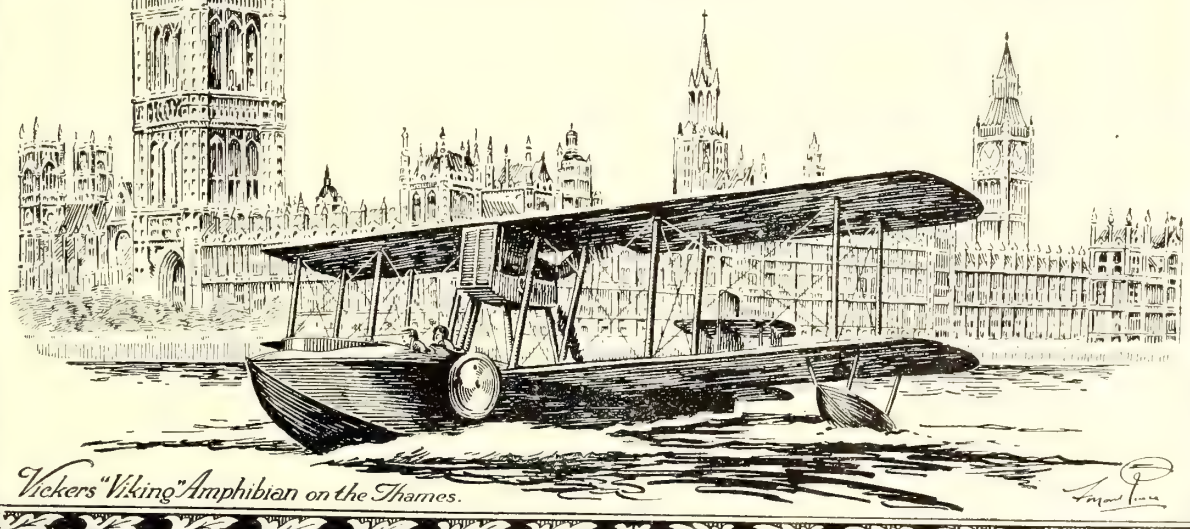
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Vickers "Viking" Amphibian on the Thames.

class of flying, it must be regarded as a very great tribute both to the qualities of the machine and to Mr. Royse's "hands." From reports since to hand the same pilot in the same machine has since made considerably better flights.

One point of considerable interest was the extraordinary steadiness of flight. One might expect a machine with so very short a tail, and that of the entirely movable type, to have shown a tendency to switchback—certainly in the hands of a pilot new to the machine. I have never seen any aircraft fly more steadily than the Espenlaub on this occasion—it was not possible to detect any movement that was not obviously at the pilot's will, except, of course, the changes in a vertical path dictated by the air flow over the hill slopes.

Considering the very rough finish of the machine, its performance seems to bear out the view that, if one makes a machine which is, as a whole, of the right shape, minor irregularities in wing section and so forth are relatively unimportant.

In any case, one must hope that the performance of this machine will avail to provide Herr Espenlaub with the funds and assistance necessary for the construction—under more favourable conditions—of still better machines. He has enthusiasm, he is very distinctly a sportsman, and he has certainly an instinct for design.

Of machines of a more unconventional design one—the Von Loessl—with the sprung wings has already been mentioned. This particular machine has a number of interesting features apart from the peculiar wing mounting. The pilot is seated in an egg-shaped nacelle between the two wings, with his seat about level with the lower wing surface. The tail is carried by a tapered rectangular section spar—something like 6 in. deep by 4 in. wide at the end of the nacelle, probably of box section.

The undercarriage is a central skid, supported by two V.'s from the nacelle, and is of very considerable height, such a height as to suggest that the eventual fitting of a light motor was considered in the design, and the undercarriage was arranged to give airscrew clearance. With the pilot carried at so considerable a height and a single central skid, one would have expected broken wing tips on landing—there are no wing tip skids—but apparently the wings stand up. The wings are of uniform chord and section for over half the span, and the leading edge is then cut back to give a semi-elliptic plan to the tip.

The other interesting unconventional type is the "Weltensegler" monoplane. This is a machine generically of the "Dunne" type, in that it has no tail whatever. It is stabilised longitudinally by swept-back wing tips of negative incidence, and the whole of the control is effected by movement of the flaps at the end of these negative tips.

For a small portion of the span the wings are set at a great dihedral angle, and are roughly at right angles to the centre line of the machine. The swept-back extensions join this portion of the wings, and are set with a considerable negative dihedral, so that in front elevation the wings are of widely opened M form. It would appear that the torsional loads on the wing roots in flight must be very serious, and it is difficult to see how they can be adequately taken by the relatively light structure actually used.

It was explained by a representative of the Weltensegler firm that this type of machine represented the one really serious scientific attempt to solve the problem of soaring. The cantilever monoplanes, which held all the records, were merely refined aeroplanes of the usual type—their success was due to the fact that the problems involved in their design were fewer and less difficult of solution than those before the Weltensegler designers. Parenthetically, we were informed that the firm proposed to design and sell machines of this less deserving type, as a means to the end of providing revenue.

So far as it was possible to gather, the underlying idea of the design was to provide a degree of automatic stability akin to that achieved in the "Dunne" machines,, and which, in fact, proved to be the undoing of the "Dunne" type. Some months ago this paper described one method of using gust energy for soaring, which was being explored by German gliding enthusiasts.

Briefly, this consisted in always turning into a gust of increasing speed, and turning with a gust of decreasing speed. This is precisely what the Dunne used to do—to such an extent that the pilot could not steer a course in gusty weather. And, apparently, the Weltensegler is to do this, and so relieve the pilot of conscious effort in the attempt to use gust energy in this manner.

Technically, the idea is extremely interesting. There seems to be no doubt that the Weltensegler machines do soar, but the very obvious difficulties of building a really clean cantilever monoplane of this type are certainly very great, and may prove an insuperable bar to success.

(To be continued.)

SEA SOARING.

On September 19th a German pilot succeeded in making two soaring flights of 2½ and 3 minutes' duration over the sea.

The machine employed was a monoplane flying boat of 29 sq. m. surface, with wings pivoted and sprung in the manner used on the Von Loessl monoplane, which Captain Savers has described in his account of his German visit.

The flights were made in a wind of 18 metres per sec. (40 m.p.h.), and the machine was crashed on the sea at the end of the second flight. These flights are claimed as a definite case of the use of gust energy on the lines of the Knöller-Betz theory, and seem evidence of the possibility of soaring quite apart from hills.

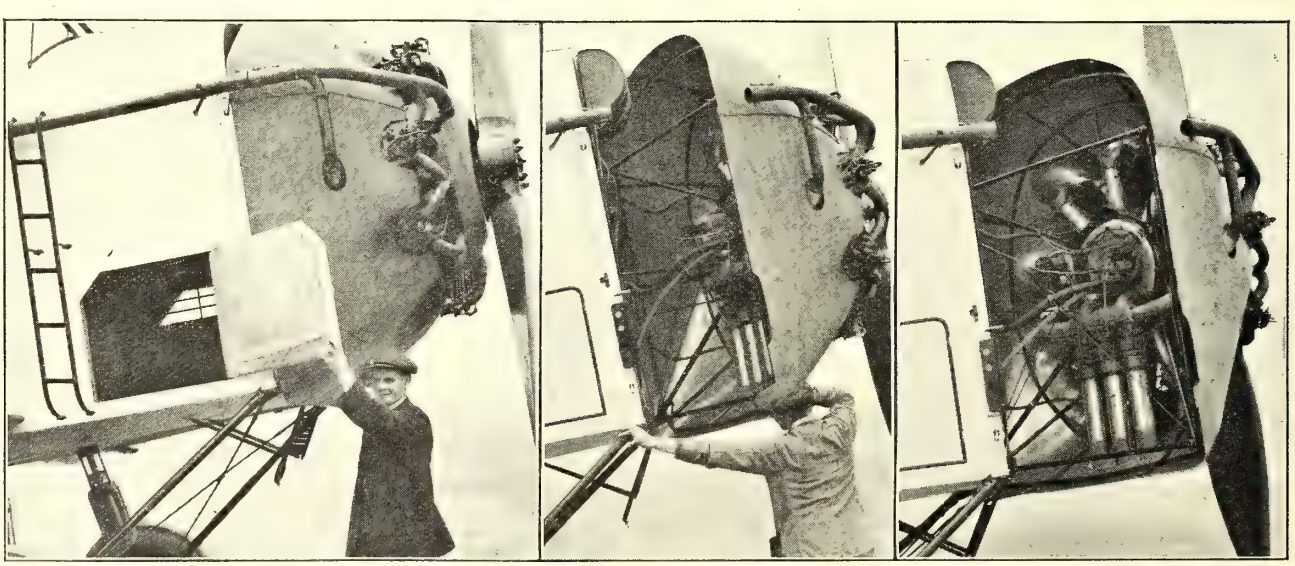
THE AMERICAN GLIDERS AT GERSFELD.

Mr. E. T. Allen, the American pilot, made a number of glides at the Wasserkuppe on the machine which he bought there from the French competition at Clermont-Ferrand.

The results obtained confirm the idea that the poor results obtained at Clermont-Ferrand are not entirely due to the deficiencies of the hill—for whereas Mr. Allen made flights of up to 2 mins. from the Puy de Combergrasse, his best at the Wasserkuppe was only 2 mins. 45 secs.

Unfortunately he crashed on September 20th, receiving some injuries. No details are to hand, but it is understood that he is not in any dangerous condition.

The main cause of the unsuccess of so many apparently good gliders would seem to be that they are too lightly loaded. Good soaring conditions mean a reasonably strong wind, and a glider whose most efficient air speed is too low to allow it to keep station in the up-current either gets blown over the hill crest and into the resulting downwash, or is driven into the face of the hill.



The nose of the new Bristol 10-seater (400 h.p. Bristol "Jupiter" engine). The short length and low weight of the engine allows the provision of an extra luggage space to carry 700 lbs. just behind the engine. On the left the door to the space is open. The two photographs to the right show the swinging engine mounting, opening and open.

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Winners of the Aerial Derby, 192
Winners of the Aerial Derby, 192

Extract from "The Aeroplane," August 9th, 1922:—

"After Mr. James had started on his second lap a very fine display of aerobatics was given by F/Lt. P. W. S. Bulman, M.C., A.F.C., on a 'Mars VI.', which is in effect a 'Nighthawk' slightly modified by Mr. Folland and fitted with a Siddeley 'Jaguar' engine. This particular machine was actually built by the Gloucestershire Aircraft Co., and only came out of their works a matter of a few days ago.

"It strikes one as a very neat job, beautifully built, as one would expect from a 'Gloucester' product, and is obviously well designed as regards balance and controls.

"Anyhow the R.A.F. single-seater squadrons would be mighty glad if their 'Snipe' were all burned and replaced by 'Mars VIs.'

"Mr. Bulman did everything that the most skilful pilot could do, and he did it all as neatly as one could wish.

"Altogether this flight was quite the most impressive spectacle of the afternoon, and coupled with the 'Bamel's' win in the Aerial Derby ought, as the phrase goes, 'to send up Gloucester shares.' Their machines certainly showed the maximum speed and manœuvrability of the day."

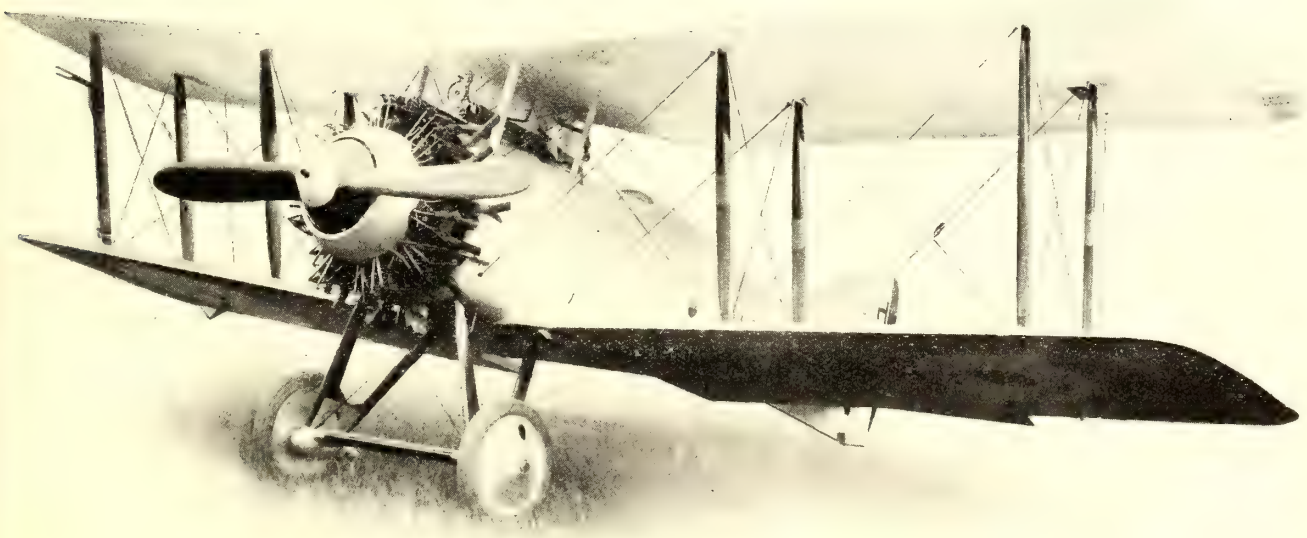
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MARS VI. (See press remarks.)

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MARS VI. (See press remarks.)

AERIAL SURVEY.

At various times there have appeared in this paper accounts of the work done in and around Newfoundland by the Aerial Survey Company, the driving force in which has been Mr. Sidney Cotton. Readers will remember how in the Spring of last year he made his first flights in search of seal packs with remarkable success, using a Westland "Limousine" with a Napier engine. A few weeks ago his further activities in the Spring of this year were duly chronicled, and it was then recorded that Mr. Alan S. Butler, who last year was flying his own Bristol biplane in this country, had joined Mr. Cotton and had done a good deal of flying of the extremely risky kind which is involved in this work of seal hunting over broken ice.

It is now announced that Mr. Butler, who recently became a Director of the De Havilland Aircraft Company, Limited, has also become President of the Aerial Survey Company. This is very good news, not only to the many friends of Mr. Cotton and his associates in the original firm, but also to everybody who is interested in commercial flying, for it indicates that at any rate one good sportsman has taken a step in the right direction, and that in due course we may hope to have other young and energetic men with money taking a practical and financial interest in forms of Civil Aviation which are capable of paying for themselves as distinct from the conventional idea that the only use of commercial aeroplanes is to run subsidised Air Lines.

Although still quite a young man, so young in fact that he was only old enough to become an Officer in the Coldstream Guards in the last year of the War, Mr. Butler has quite extensive commercial knowledge, and one can vouch personally for the fact that he has a good business head. He has proved himself during the Company's recent operations to be fond of hard work, for apart from supplying the badly needed finance for the firm's experimental work and flying his own machine, he has also taken a very active part along with the firm's personnel in the rough work that has fallen to their lot while carrying out their Winter operations in Newfoundland and Labrador.

Mr. Sidney Cotton, the vice-President of the Company, whose achievements are already well known, is certainly to be congratulated on his success in securing the co-operation and support of Mr. Butler. If only a few more men of Mr. Butler's type and with his qualifications would take a hand in Civil Aviation it would soon be able to fulfil Mr. Churchill's and Captain Guest's dictum that it must "fly by itself."

The Directors of the Aerial Survey Company have now decided to carry out a definite programme of flying operations on an extensive scale with a view to making their market. That is to say, instead of waiting to get contracts for aerial surveys they intend to do a big aerial survey of Newfoundland so as to demonstrate what can be done in this direction. One agrees cordially with their contention that when they can once produce an aerial survey of a practically unmapped country such as Newfoundland other contracts will follow as the result of such a conclusive demonstration.

Hitherto the firm's operations have been concerned with Winter flying. Passengers and mails have been carried when all other means of conveyance have been blocked by snow, and seal-spotting has been done as already described in this paper. The actual survey work is now about to begin. As a first step towards this work Major H. Hemming, who was Managing Director of the Bermuda and West Indies Aviation Company, has resigned his position with that firm and has joined the Aerial Survey Company, where he will have charge of the Aerial Photographic Mapping Section. Mr. Corse, who was the chief photographer in the Bermuda Company's expedition in the Orinoco Delta, has joined Major Hemming.

They are taking with them to Newfoundland a very complete equipment of photographic apparatus. As soon as possible this Section will carry out a demonstration survey of an area of 100 square miles of Newfoundland at its own expense and will then endeavour to secure trial contracts for this type of work. It is believed that there will be a considerable demand for photographic maps of timber properties in Newfoundland and Labrador, as the aeroplane makes it possible to photograph areas in distant and hitherto inaccessible places.

It is known as the result of experimental work in Canada that a timber expert studying aerial photographs can pick out different types of timber, judge the height of trees and even estimate the condition of the trees. Also it is obvious that such photographs make it easy for the timber operators to select the best routes for transport purposes and so forth. The Aerial Survey Company thus places at the disposal of the Lumber Trade a valuable means of opening up unexplored areas in countries like Newfoundland and Labrador, which are rich in valuable timber and other wealth. And it will be quite easy to prove to owners of property that the cost of aerial survey operations is very small when compared with prospecting similar areas on land.

Foreign and Colonial Governments are already turning their attention to the use of aircraft for survey work, and therefore the work of the Aerial Survey Company is bound to be watched with considerable interest. The British Government itself realises the importance of this class of work, as is proved by the existence of the Aerial Survey Committee, which meets regularly at the War Office and consists of officers of the Royal Engineers and the Royal Air Force. The function of this Committee is to compile data and to carry out experiments and to assist generally in the furtherance of this important work. The liaison between the Ordnance Survey Section of the Royal Engineers and the Air Force is becoming closer and closer, and officers of the R.A.F. are already being detailed to do ground survey work with the Sappers, so that they may acquire the precise knowledge of the requirements of map makers.

France, always well to the fore where aviation is concerned, is using photographic aeroplanes for carrying out the registration of land in the former battle areas under the Land Reclamation Department. This, of course, is work which has to be done with considerable accuracy, and it is therefore the more interesting to note that aircraft are being used.

It is obvious that if it was worth the while of Government Departments to use aircraft for survey work of this nature there must be quite a big future for aerial surveying purely as a commercial proposition, and therefore one has considerable confidence in the possibilities of the Aerial Survey Company. One is told that the ultimate aim of the Aerial Survey Company is to run a fleet of aeroplanes with pilots and photographers and a ground staff specially trained for survey work. Detachments of this fleet will then be ready to proceed to any part of the World to carry out aerial surveys by contract.

Naturally, a certain amount of experimenting will be necessary before it can be decided definitely what equipment and what personnel are necessary for a survey unit, and in order to obtain this information it is intended to perfect the firm's work in Newfoundland and Labrador before definitely undertaking contracts elsewhere. The idea is thoroughly sound, as the conditions in that part of the World are such as to try the endurance of both the personnel and the equipment to the utmost. Both the climate and the topography are all against aviation as we understand it in this country, and by the time the pilots and the ground staff have made good they ought to be competent to undertake work in any other part of the World with absolute certainty of success, and they should also have learnt enough to make it quite easy for them to train other air and ground personnel to do similar work under what must inevitably be easier circumstances.

With anything like good luck the Aerial Survey Company should expand into a really great business concern. One knows something of the organisation and one knows that so far as care and foresight can insure against mishap the firm's work will be successful. The mechanics already with the firm in Newfoundland are an exceptionally good lot, and others who have been or are being engaged in this country are of an equally high standard. They are young men with a taste for adventure and a fixed belief in the great future of Civil Aviation. When all hands, from the Directors of the firm downwards, are inspired by a similar belief, the firm deserves success, and is in a fair way to command it.—C. G. G.

INDIAN AERIAL SURVEY.

The Simla correspondent of *The Times* on September 14th :—

"Next cold weather an experimental survey from the air of 700 square miles in the Irrawaddy Delta is to be undertaken by the Civil Air Board. It is expected that an air survey will be quicker and cheaper than the ordinary method in an area so cut up by innumerable densely-wooded creeks. The Forest Department is specially interested in the scheme for its extension to the large unsurveyed forest areas of Burma, which are of the utmost commercial importance. The latest Survey map of the Irrawaddy Delta dates from 1869."

[The intelligence of the Civil Air Board of India would appear to be almost human. With two or three years of Canadian experience before it the Board has at last reached a reasonable conclusion. One assumes that the personnel and material used will be borrowed from the R.A.F., as it will obviously be cheaper to use up men and machines from that half-starved Service than to let the work out to contract by an efficiently equipped commercial aircraft firm.—C. G. G.]

ITALIAN SEAPLANES IN SPAIN.

Three Macchi 18 flying boats (Isotta Fraschini V.4 B. engines) have arrived at the naval flying school at Barcelona. Two Savoia 16 bis flying-boats (300 H.P. Hispano-Suiza, engines) have arrived at Los Alcazeros for the Spanish Naval Air Service. Thus the Italian flying boats that in a few months have been delivered to the Spanish Naval Air Service sum up to a score.

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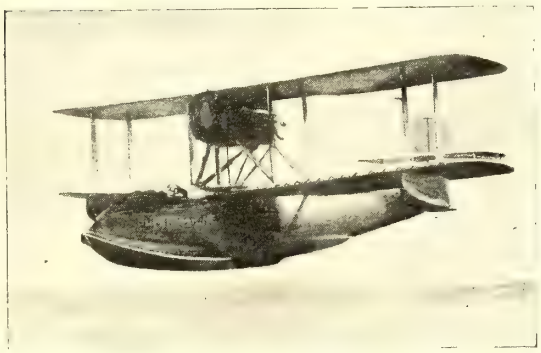
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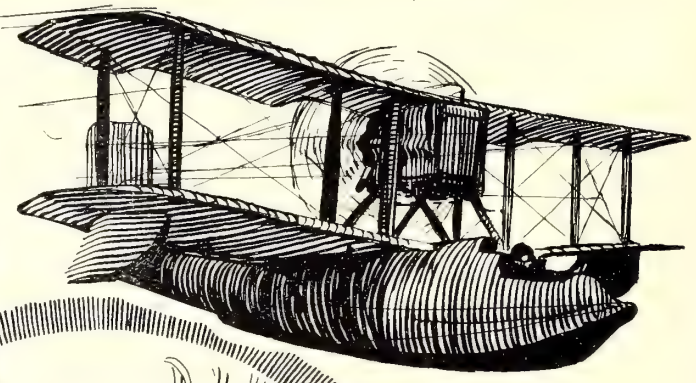
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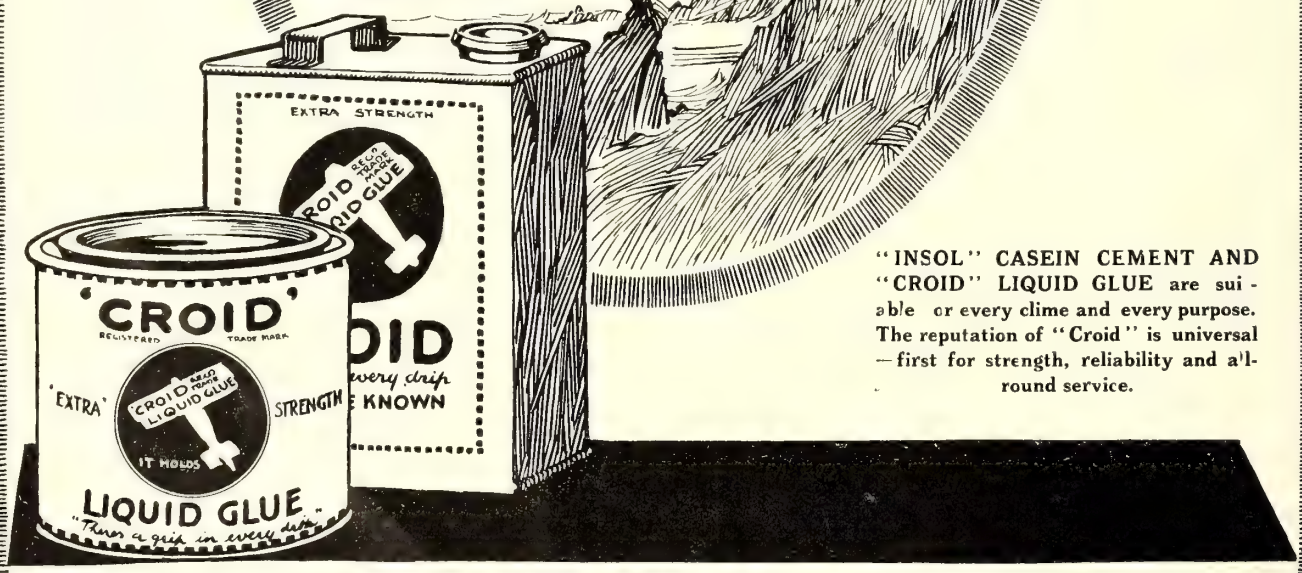


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(*Continued from page 264.*)

ting round in a little over 18 minutes. It was astounding. Then, still at full speed, he pulled to the west of the pylon and flew across the aerodrome instead of keeping east of it and turning.

Everybody was dumbfounded. Even the French could not detect a flaw in the running of the Napier. It seemed that the pilot must have gone mad, or suffered one of those curious brain effects which cause one momentarily to do or say the exact opposite to what one intended, much as the submarine K3 was sunk by a man opening an already shut air-valve as the boat was diving.

Then to our horror we saw James do a faultless turn, an equally faultless landing, and taxi faultlessly under perfect control up to the sheds, where later we heard the lamentable story of the maps, as already stated. England was as definitely out of the competition under James' guidance as England seems to be out of sympathy with the rest of Europe under the guidance of his distinguished compatriot our beloved Prime Minister. Some day perhaps a mere Englishman may reinstate us as a nation in the eyes of Europe and regain for us international respect and our own self-esteem.

Sadi-Lecointe's Little Trip.

After England's humiliaton there remained only to see what Sadi-Lecointe would do on the "Sesquiplan." He decided to have a try for the cup although it was safe in French hands already. He started at 15.50.12 hours and did his first lap in 18 min. 26 sec., a speed of 325 kms. per hour and a new world's record.

Just as he was coming up to the turn at the end of his second lap there was a bang and a sparking-plug blew clean out of his Hispano and punched a hole in the cowling. Then Sadi did the silliest thing one has ever seen done by a first-class pilot. Instead of carrying on straight past the pylon and doing a big left turn far beyond, so as to land back up the hill of the course, he deliberately took a great sweeping turn all round the aerodrome and deliberately landed down hill and with what little wind there happened to be.

Owing to the "Sesquiplan's" gliding angle the ground sank quicker than the machine so that by the time he did touch earth the machine was completely out of control. Consequently it did just what Kirch did last year but instead of waving its wings and tail wildly and then settling onto its wheels it made several bumpy hops, fell over on a wing-tip and then turned onto its back.

It almost equalled as an exhibition of bad aviating James' exhibition of bad piloting. There was no earthly reason why Sadi should not have landed up-hill instead of down. But there was the difference that Sadi only broke a rather nice aeroplane belonging to a firm that is at present engaged on mass production on a war footing, and did not lose a very sporting employer a great international event. Sadi himself escaped with a mere shaking, having tucked in his head as he turned over. The embracing which he received in his shed afterwards from his excited and relieved friends must have damaged him far more than his somersault.

After that came Brack-Papa's second and abortive attempt, and so all was over.

Better Luck Next Time.

The English contingent once more wended its way sorrowfully homewards, as has become its custom. It is said that some of them were observed later that night to have recovered somewhat from their overwhelming grief. Perhaps next year, if there are some Air Ministry orders going about in the aircraft trade or if one or two rich sportsmen begin to take an interest in air racing, it may be possible to send over a full team of British machines.

The one thing which might go far in the meantime to rehabilitate us in the eyes of the world would be for the "Bamel" herself to go for speed records in France under French conditions. It would be much better than doing it in this country with our own timing, for then nobody could cast any doubts on our accuracy. But one can scarcely expect Mr. Martyn to sanction the expense. His firm has already done far more than anybody had any right to expect of it for English speed-flying. We as a nation owe him and his firm a deep debt of gratitude for all they have done without reward. One can only wish them a really great success when, if ever, they again venture into international competition. Meantime, as a nation we are down and out.—C. G. G.

[POSTSCRIPTUM.—As this paper goes to press it is reported that the "Bamel" is going for records at Etampes. Here's wishing it luck.—C. G. G.]

	James	Brack-Papa	Casale	Lasne	Sadi Lecointe
Starting Time	(about) 14.45 00	10.28.40	10.10.45	10.35 35	15.50.12
100 km. Time	(Failed to complete circuit)	20.43 3/5	24.21 1/5	20.41 2/5	18.26
100 km. Speed	——	289.5	246.2	289.9	325
200 km. Time	——	41 35 4/5	(Retired)	41.27 1/5	(Retired)
200 km. Speed	——	288 4	——	289.48	——
300 km. Time	——	62.27 1/5	——	62.11 4/5	——
300 km. Speed	——	288.7	——	289 4	——
Place	0	*	——	1	0

*** Brack-Papa's start being irregular he holds no position in the race and so is not placed. Thus only one competitor, Lasne covered the course.**

ANOTHER VIEW OF THE DEUTSCH CUP RACE.

One of the greatest feats in the race for the Deutsch Cup was undoubtedly the manner in which Mr. F. Hazell Jones, of D. Napier and Son, succeeded in getting himself and myself out to Ville Sauvage in time for the start of the race. Anybody who considers travelling to future air races, or any place in the country of the Heathens for that matter, for surely a nation which goes in for the Mass-worship of calves are Heathens, could not do better than borrowing Mr. Jones for the day. He is worth his weight in gold and one imagines that he has been a pupil of the great Mr. Solomon who as everybody knows has been with that firm for about 130 years. To cut a long story short, after spending a typical night in the capital of the Heathens and sleeping the sleep of the just, we went by train and taxi, and reached Etampes by 9.15 a.m.

I had always imagined that the aerodrome chosen for the international speed events was a magnificent open strip of country about 10 miles by 10, and was rudely surprised to find a not very long narrow stretch of country about a couple of hundred yards wide and possibly about a thousand yards long. In fact so narrow is this aerodrome that the finishing line, which is of the same length as that at Croydon, has one-third of itself in an adjoining cabbage patch. The surface near the enclosures is moderately good, but farther out it is appalling, and the whole racecourse (it cannot be called an aerodrome) undulates heavily downwards towards the north with a wave-length of about 100 metres. However, that seems to be the French idea of an aerodrome and one can but admire their courage or lack of imagination.

The first homely touch seen on arrival was Mr. Perrin, in his usual suit of "plus fours" and Colonel McClean, to be followed shortly afterwards by General Brancker. Everybody very much appreciated General Brancker's keenness in coming right out to such a desolate spot, for he is a very busy man; but I really believe that if a British machine were taking part in a race somewhere in the Fiji Islands, no matter where he was the day before General Brancker would appear there in time for the start and do all he possibly could to assist the British machine.

The first machine away was M. Jean Casale on the 400 h.p. Lorraine Spad. This machine seems to be a perfectly ordinary Spad fitted with a larger engine, and this was almost its first flight. It was no class as a racing machine and was nothing like so fast as the Bristol "Jupiter" which F/O Haig flew in the Aerial Derby. After a couple of laps he retired.

Meanwhile, M. Fernand Lasne was preparing to start on the old Hispano-Nieuport biplane on which M. Sadi-Lecointe won the Gordon Bennett race two years ago, and Signor Brack-Papa was preparing the 700 h.p. Fiat. How this machine ever succeeded in persuading a timekeeper to think it did 210 m.p.h. is one of the greatest mysteries of the age. It does not even look like a racing machine and seems to be all wires and struts.

The one machine that the British team really feared in the race was this Fiat, and there was a great sigh of relief when it was seen that he was actually lapping slower than last year. He made his three circuits of the course at an average speed of 288.7 kms. per hour and then it was learnt that he had passed outside the starting line instead of crossing between the two pylons, and therefore he had not officially started. His landing was perfect.

At 10.30 hours or thereabouts M. Lasne got going on the Gordon Bennett machine and crossed the line in fine style, and, considering the age of the machine, made very good time indeed. He went up to about 1,500 feet or so, put his nose down, and crossed the line at about 500 feet, and disappeared in the direction of the other turning point at a place called Gidy. At each of his returns he took the pylon

in great style, not losing an inch, and making finely banked turns full out

After he had finished with a pretty landing, with the prop stopped interest slackened as it was announced that Mr. James would not start until 14.00 hours. The Royal Aero Club, who always rise to such occasion, had provided an excellent lunch for all the British contingent in the " Bamel's " shed, and with this we filled in time and ourselves whilst discussing what a runaway victory the " Bamel " was going to have. At about one o'clock the machine was brought out on to the line and Mr. James ran the engine up.

THE MISADVENTURE OF MR. JAMES.

Last year he carried his map on his knees and had very considerable difficulty with it. This year he had his map pasted onto two pieces of three-ply wood joined together with about 18 inches of string, and this was the cause of the tragedy. It is easy enough for us armchair critics to sit down and say that he should not have needed a map, that he should have known the course, or that he should have known better than trying to tie a map round his neck. Doubtless it is easy enough to find one's way round any course when sitting on the ground in a comfortable chair or in a car, especially when it looks so easy on the map. But sitting in the world's fastest aeroplane, doing more than 210 m.p.h., it is a very different question. And moreover, we all saw, or should have seen, Mr. James sitting in the machine with the maps round his neck, and though afterwards we were all very clever and knew that it was bound to strangle him not one of us had the sense to tell him to take them off.

I have heard it said that next year we should have a good pilot to represent us and not merely a good aviator. Well then let us also have some useful spectators, instead of merely the ornamental type who tell us all about what went wrong afterwards.

Anyway, to get back to the point, Mr. James gave his notice of starting round before 14.45 hrs., and after being well attended by cinema and camera men of all shapes and descriptions he taxied down to the northern end of the aerodrome, turned round and took off in a hundred yards or so. It was a beautiful start, the machine picking up her speed straight away, and the hopes of other nations fell. After flying round behind the starting line he crossed this at a most amazing speed and disappeared in the direction of Gidy and several of us went off to the canteen to celebrate prematurely the British victory. Here also was Sadi-Lecointe surrounded by friends with very long faces.

After 17 minutes Mr. James came back at a colossal speed and victory seemed absolutely certain when, to our horror, he turned in over the finishing line and landed; which caused M. Sadi-Lecointe to break all speed records in leaving the canteen. Mr. James came up to the shed and it was then found that his maps had blown out round to the back of his neck in such a manner that the string tightening on his throat as the maps twisted round behind in the 210 m.p.h. slip stream were making quite a good attempt to strangle him.

This was before he reached Gidy and he spent some minutes in endeavouring to untangle them and when he managed finally to do so they flew out of his hand and were away. By this time he was miles off his course as two or three minutes at 210 m.p.h. carries one some considerable distance and so the only thing for it as he was now absolutely lost and mapless a stranger in a heathen land was to make his way back to the aerodrome as best he could and land.

In the same race last year Mr. James had an equally unforeseen piece of bad luck which robbed him of a certain victory, and so one can but sympathise the more with him on the cruel hard luck of this year. He was naturally the most bitterly disappointed of the whole lot, as it is a very big thing for a pilot to pull off a race of this calibre.

Furthermore, had not Mr. James been a sportsman he could easily have come down saying it was engine trouble or something was wrong with the machine. Had he put the blame on the Napier Company or the Gloucestershire people in that way no one could possibly have denied it. He blamed himself, and himself only, for putting the maps round his neck, making no secret of the fact that he knew it was his mistake. There were those at the aerodrome who questioned Mr. James' skill as a pilot because of this, but, as I have said before, it is easy enough to criticise from the ground and after the event, and I was very sorry to see the somewhat professional-soccer-watching manner in which some spectators took the defeat, as one was always rather under the impression that the one thing about an Englishman is that he can take a licking in a sporting manner, in fact, the comments of at least two foreigners on our mode of taking the misfortunes of war were rather unpleasant.

M. SADI'S SAD FATE.

It was pleasing to see the French rallying round M. Sadi-Lecointe and the thrill of excitement when at about 15.00 hrs. his " Sesquiplan " (on which M. Kirch won last year) was wheeled out onto the aerodrome. The machine has been considerably cleaned up and the engine boosted. M. Sadi started off about 15.30 hrs. and after running for half a mile or so got into the air at quite a moderate speed. He crossed the starting line at a speed which was probably somewhere about 200 m.p.h. and made off to Gidy. In less than 20 minutes he was back again. The second time it was seen that he had engine trouble and was about to land. Just previous to this M. Casale had been up on his " Spad " and had landed and lost his prop down one end of the aerodrome where it is slightly wider, and unless M. Sadi had set his heart on landing down-hill and down-wind the presence of this machine should have made no difference to him.

Still, the French apparently can only land one way on this semi-race course-aerodrome and so down-wind and down-hill he had to come. His engine was obviously missing but there was plenty of life left in it and he could easily have made another circuit or so and come in the other way if he had wished. He made a typical French scout landing coming along all out about ten feet up from a mile or so outside the aerodrome and as he reached the boundaries he switched off altogether and proceeded to do the sort of pump-handling business that most pupils used to do on a Maurice Farman when under instruction. He bounced ten or eleven times and finally began to slow up and it seemed that he was all right, but then he apparently got onto some slightly rough ground and executed that delightful movement made famous by Mr Frank Courtney at the Aerial Derby in 1920 and turned the machine onto its back. As in the case of Mr. Courtney the whole crowd broke through the railings with much emotion and invaded the aerodrome. But the majority of them were fortunately stemmed by a large contingent of the French army with fixed bayonets and in two minutes M. Sadi, quite unhurt, was brought back in a car and put safely in his shed where he was almost done to death by super-enthusiastic kissers of both sexes.

During the afternoon Signor Brack-Papa's machine had been given a new airscrew and round about 17.00 hrs. he started off again on the course, still sky-writing gaily. He came round all right on the first circuit but when the time for his appearance on the second circuit arrived he did not, and considerable anxiety was felt especially as the more gloomy of those present imagined all sorts of puffs of black smoke to be seen round the country side were caused by the conflagration of Brack-Papa's machine. Shortly afterwards he arrived at the aerodrome in a car having had to land owing to the broken water-pipe on his radiator. And that was the end of active flying in the second Coupe Deutsch Race.

There was a certain amount of incidental flying during the race the most amusing being the appearance of Capt. F. C. Broome on a Vickers " Viking V." on his way to Spain. He flew right down the centre of the course with the Napier engine emitting a lovely roar. He seemed to be just as fast as if not faster than M. Casale's Spad.

The Aftermath.

An adjournment was made to the canteen where the Aero Club de France entertained all and sundry to speeches, champagne and sandwiches. The assembly was graced by the presence of Mme. and Mdlle. Deutsch de la Meurthe. Everyone was glad to see Capt. Madon who had rather a serious smash the previous Monday when trying to take off on the " Simplex " tail-less monoplane. Although his head was swathed in bandages he seemed quite cheerful and able to get about all right.

Although there were no actual aviation records worth mentioning the meeting will always be famous for the fact that among the spectators there was seen a record " beaver," a man with a beard almost down to his knees. This caused terrific excitement among the more enthusiastic beaver-hunters of the Royal Aero Club and he was in much demand by those with cameras. Mr. Fokker was also among the spectators at the race, and he was of as much interest to the French camera men and others as was the beaver to the British.

After which, we all adjourned to the Hotel in Etampes and then Mr. Jones and myself, now reinforced by Mr. James, had a great race back to the Capital in a taxi which beat easily a high-speed Mercedes used by the Royal Aero Club officials.

One sympathises very much with the Gloucestershire Aircraft Company and especially with Mr. Martyn and Mr. Folland who had come out to see the race with such justifiably high hopes, but one is bound to say that it is a pity the machine was not at Ville Sauvage a fortnight before the race so that Mr. James could have gone round and round the course and known every stick and tree on it as I sincerely hope he will be able to do next year. The Company have spent any amount of money on the furthering of British Aviation prestige in entering the " Bamel " for all the big events of the past fifteen months. Everyone will wish them better luck next time.—G. D.

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18 h.p. (R.A.C. rating 17.9) Chassis, including speedometer, electric Klaxon horn, spare wheel and tyre. - - - £500

30 h.p. (R.A.C. rating 29.5 h.p.) Chassis, including clock, speedometer, electric Klaxon horn, spare wheel and tyre. £700

The prices of complete Armstrong Siddeley Motor Carriages with Burlington Coachwork:

18 h.p.		30 h.p.	
4 Seater Touring Car - -	£660	5 Seater Touring Car - -	£950
5 Seater Touring Car - -	£685	Saloon - - - - -	£1000
Saloon - - - - -	£785	Town Saloon - - - -	£1050
Landaulette - - - -	£875	Landaulette - - - -	£1150
		Limousine - - - -	£1200

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R.A.F. INTELLIGENCE.

R.A.F. Appointments.

Air Ministry, Sept. 27th.

Grp/Capt. Hon. J. D. Boyle, C.B.E., D.S.O., from No. 7 Group H.Q. to H.Q., R.A.F., Iraq (Supernumerary), 14/9.

Wing/Cmdrs. W. H. Primrose, D.F.C., from School of T.T. (Men) (Arm. Car Details) to H.Q., R.A.F., Iraq (Supernumerary), 14/9; G. P. Grenfell, D.S.O., from Half-Pay List to Air Ministry (C. of C.), 14/9; D. L. Allen, A.F.C., from Half-Pay List to R.A.F. Depot (Supernumerary), 20/9; W. Tyrrell, D.S.O., M.C., M.B., from Research Laboratory and M.O.S. of I. to Basrah Hospital (Iraq) for duty as O/C., 14/9; B. A. Playne, D.S.O., M.B., B.A., from H.Q.I.A. to command Baghdad Combined Hospital (Iraq), 14/9.

S/Ldrs. A. Levick, O.B.E., from H.Q.I.A. to H.Q., R.A.F., Iraq, 14/9; W. V. Strugnell, M.C., from R.A.F. Depot to Aircraft Depot (Iraq), 14/9; W. G. Sitwell, D.S.C., from Electrical and Wireless School to H.Q., R.A.F., Iraq, 14/9; F. G. D. Hards, D.S.C., D.F.C., from R.A.F. Depot to H.Q., R.A.F., Iraq (Supernumerary), 14/9; F. H. W. Guard, C.M.G., D.S.O., from School of T.T. (Men) (Arm. Car Details) to H.Q., R.A.F., Iraq (Supernumerary), 14/9; A. J. Butler, M.C., A.F.C., from R.A.F. Depot to H.Q., R.A.F., Iraq, 14/9; J. A. Stone, from H.Q.I.A. to H.Q., R.A.F., Iraq (Supernumerary), 14/9; R. P. Willcock, from School of T.T. (Men) (Arm. Car Details) to H.Q., Iraq (Supernumerary), 14/9; R. L. G. Marix, D.S.O., from R.A.F. Depot to Electrical and Wireless School (Supernumerary), 25/9; W. W. Shorten, F.R.C.S. (E.), from H.Q.I.A. to Baghdad Combined Hospital (Iraq), 14/9.

F/Lts. J. M. Robb, D.F.C., from No. 24 Squadron to No. 6 Squadron (Iraq), 14/9; R. S. Aitken, M.C., A.F.C., from Electrical and Wireless School to H.Q., R.A.F., Iraq, 14/9; H. M. K. Brown, from School of T.T. (Men) (Arm. Car Details) to H.Q., R.A.F., Iraq (Supernumerary), 14/9; E. P. Roberts, M.C., D.C.M., from H.Q.C.A. to No. 6 Squadron (Iraq), 14/9; F. L. C. Butcher, from Electrical and Wireless School to H.Q., R.A.F., Iraq (Supernumerary), 14/9; N. H. Jenkins, D.F.C., D.S.M., from No. 24 Squadron to No. 84 Squadron (Iraq), 14/9; C. E. Wardle, from School of T.T. (Men) (Arm. Car Details) to H.Q., R.A.F., Iraq (Supernumerary), 14/9; G. F. P. Warren, from School of T.T. (Men) (Arm. Car Details) to H.Q., R.A.F., Iraq (Supernumerary), 14/9; H. O. Fellowes, from H.Q.I.A. to H.Q., R.A.F., Iraq, 14/9; H. V. Drew, A.F.C., from No. 10 Group H.Q. to H.Q., R.A.F., Iraq (Supernumerary), 14/9; W. H. Ellison, from No. 1 School of T.T. (Boys) (Halton) to Aircraft Depot (Iraq) (Supernumerary), 14/9; A. E. Sutton-Jones, from R.A.F. Base, Gosport, to H.Q., R.A.F., Iraq (Supernumerary), 14/9; A. H. Comfort, from R.A.F. Depot to Stores Depot (Iraq), 14/9; (Act. S/Ldr.) F. Binns, M.B.E., from R.A.F. Depot to H.Q., R.A.F., Iraq (Supernumerary), 14/9. W. J. de Salis, D.S.C., from Marine and Armament Exp. Estab. to Half-Pay List, 28/9; W. K. Mercer, from R.A.F. Depot to R.A.F. Base, Leuchars, 1/10; A. R. Thomas, from Instrument Design Establishment to No. 5 F.T.S., 2/10; P. J. Flood, from School of T.T. (Men) to H.Q., R.A.F., Iraq (Supernumerary), 14/9; H. B. Troup, from No. 1 School of T.T. (Boys) (Halton Hosp.) (Halton) to H.Q., R.A.F., Iraq (Supernumerary), 14/9; D. Le Bas, from R.A.F. Depot, H.Q., R.A.F., Iraq (Supernumerary), 14/9; S. E. Elprick, from R.A.F. Hospital, Cranwell, to Baghdad Combined Hospital (Iraq), 14/9; A. C. Ransford, from School of T.T. (Men) to H.Q., R.A.F., Iraq (Supernumerary), 14/9; J. B. Woodrow, from R.A.F. Depot to H.Q., R.A.F., Iraq (Supernumerary), 13/9; J. M. A. Costello, M.C., M.B., from R.A.F. Depot to H.Q., R.A.F., Iraq (Supernumerary), 14/9; W. D. Miller, M.B., from R.A.F. Depot to H.Q., R.A.F., Iraq (Supernumerary), 14/9; R. Boog-Watson, M.B., D.P.H., from R.A.F. Central Hospital to H.Q., R.A.F., Iraq (Supernumerary), 14/9; R. M. Trevethan, M.C. The notification which appeared in R.A.F. Intelligence, dated 5/9, wherein this Officer was posted from No. 207 Squadron to School of Photography with effect from 25/9 is cancelled. J. F. Gallagher, from No. 1 School of T.T. (Boys) (Halton) to No. 39 Squadron, 20/9. Substituted for the notification concerning this Officer which appeared in R.A.F. Intelligence, dated 21/9. D. J. Jones, M.B., from No. 1 School of T.T. (Boys) (Halton) to No. 1 F.T.S., 20/9. Substituted for the notification concerning this Officer which appeared in R.A.F. Intelligence, dated 21/9.

The Prince of Wales at Leuchars.

It is of considerable interest to hear that the R.A.F. personnel stationed at Leuchars had the opportunity of paying their respects to His Royal Highness the Prince of Wales as he was returning from his recent visit to St. Andrews. The Prince was due to leave Leuchars Junction at 21.20 hours. News of this was conveyed to the R.A.F. at 20.00 hours on the same day. Quick work at the air station produced 200 other ranks of the R.A.F. on the platform of the Junction.

The Prince arrived at the station at 21.00 hours and desired that all the officers present should be presented to him by the Officer Commanding. Thereafter he inspected the men in the ranks and made a point of speaking to all those who were wearing medals. This personal interest naturally pleased the troops immensely.

Thereafter until his train arrived he remained in conversation with the officers of the R.A.F. which, one gathers, caused some chagrin to certain important local people who were present. Before leaving he expressed his gratification at seeing the R.A.F. make such a good show and promised that the next time that he was in that part of Scotland he would make a point of paying a visit to the air station. As his train left the R.A.F. Station Band played "Auld Lang Syne" and the troops gave him two sets of three really good cheers.

THE R.A.F. IN THE NEAR EAST CRISIS.

The *Morning Post* correspondent in Constantinople reported on September 28th as follows:—"A strong Air Force detachment marched through the town this morning. Some of the force are to proceed to Chanak. The Upper Bosphorus is being patrolled. About 60 aeroplanes will be concentrated within reach of the Neutral Zones. This show of military readiness is having an excellent moral effect here in view of the recent boasting and menacing attitude of the Turkish mob in the city."

The *Daily Telegraph* of September 29th says:—"We are authoritatively informed that the 208th Squadron of the Royal Air Force, stationed at Ismailia (Egypt), has left there for Constantinople, and will co-operate with the 267th Squadron, which moved eastward with the Fleet from Malta.

"This will give an available fighting force of some 30 machines, with an equal number in reserve.

"Other squadrons, fully equipped, are ready in England to be sent at a moment's notice, should their presence in the Near East be required."

The Times correspondent at Gibraltar reported on October 1st that H.M. aeroplane carrier *Ark Royal*, escorted by H.M. cruiser *Cambrian*, arrived to-day, and left immediately eastward bound, as did also the submarine depôt ship H.M.S. *Lucia*.

It is believed in the R.A.F. that the *Ark Royal* is going East to be in readiness for the Great War with Russia, as her rate of progress will scarcely enable her to reach Constantinople in time for the development of the present crisis.

It may be added that H.M.S. *Braemar Castle*, which left for Irak recently exclusively as an R.A.F. troopship, with 100 officers and 1,000 men on board, has been side-tracked to the Dardanelles. Also certain squadrons hitherto stationed in England have left for the Near East area. It is said that excellent aerodromes are available at Gallipoli, Bulair, and elsewhere on the Gallipoli Peninsula, and that these command easily any position in the Chanak area.

THE INTER-CITY CHALLENGE.

It is satisfactory to know that the proposal put forward by Lt.-Col. Spenser Grey that an Inter-City Air Championship Race should be held is causing considerable interest in the Provinces. The expected challenge from Leeds has not yet materialised, as the big men of that city are deliberating on the subject with true north-country caution before committing themselves to a financial deal. It seems quite likely that the challenge may come first from some smaller town, say Sowerby Brig, where people are accustomed to hurry.

Several of the big cities of the South and West are said to be stirring in the matter, notably Bristol which generally displays the spirit of the old Bristol merchant venturers when anything of real importance crops up. And there is talk of some well-to-do sportsman putting up a challenge from a remote village.

The Air Ministry in General and the Director of Civil Aviation in particular are well disposed to the scheme, which if it achieves the popularity it deserves will do much to create popular interest in flying. It is hoped to have more definite information next week.—C. G. G.

INTERNATIONALISM.

Speaking at a meeting of the Overseas League on October 2nd, Sir Sefton Brancker, after giving his audience, in his usual entertaining manner, a quantity of valuable facts (such as are necessary to the uninformed but are familiar to readers of this paper), terminated his address by making a statement which should be of use in argument even to the best-informed of aeronautical people.

Speaking as a member of the International Convention on Air Navigation, he said: "There is more mutual trust and real co-operation between nations on that Convention than on any other. There is a spirit about aviation, which tends to co-operation instead of eternal bickering and fighting over small points, and I am not at all sure that the International Convention will not be one of the biggest weapons for peace of the League of Nations."

With which one quite agrees, so long as the League of Nations exists. And after that one is inclined to think that the International Air Convention will still do more good among the civilised nations of Western Europe than any other species of International gathering, except perhaps the quite unadvertised gathering of the International Hebrew financiers.

PERSONAL NOTICES.

Death.

SOUTHGATE.—On August 19th, drowned off Newfoundland, Lieut. Leslie Southgate, C.A.F., late R.A.F., son of Louis Murray and Frances Southgate, Kensington Gardens Square, aged 26.

Engagements.

DASH—TYRRELL.—The engagement is announced between Roydon Dash, D.F.C., only son of R. Ashford Dash, of 6, Berrylands, Surbiton Hill, and Christine (Chrissa), third daughter of F. G. Tyrrell, of Westholme, Laton Road, Hastings, Sussex.

PRETYMAN—ROSS HUME.—The engagement is announced of F/Lt. Edward Radclyffe Pretyman, A.F.C., R.A.F., younger son of the late Maj.-Gen. Sir George Tindal Pretyman, K.C.M.G., C.B., and Lady Pretyman, 10a, Devonport Street, W.2, and Mabel Henrietta Louisa Ross Hume, daughter of Robert and Lady Mabel Sievier, Fitzroy House, Newmarket.

Marriage.

BRACKLEY—MOND.—On Sept. 27th, at All Saints Church, Margaret Street, W., Maj. Herbert George Brackley, D.S.O., D.F.C., to Frida, elder daughter of Mr. Robert Mond, J.P., of Combe Bank, Sevenoaks.

COMMERCIAL AERONAUTICS.

The London Terminal Aerodrome.

CONTINENTAL ARRIVALS AND DEPARTURES.

ABBREVIATIONS:—A.D.—Aircraft Disposal Co. B.A. Berkshire Aviation Co. B.C.—Bristol Aeroplane Co. C.A.—Department of Civil Aviation. D.A.—Daimler Airway. D.H.—De Havilland Aircraft Co. G.E.—Compagnie des Grands Express Aeriens. H.P.—Handley Page Transport Ltd. I.L.—Instone Air Line. K.L.—Koninklijke Luchtvaart Maatschappij. L.A.—Leatherhead Aviation Services. M.A.—Messageries Aeriennes M.W.—Marconi Wireless Telegraph Co. Ltd. P.O.—Privately owned. W.A.—Westland Aircraft. S.F.—Surrey Flying Services. S.N.—Belgian transport company.

ANALYSIS OF FIGURES.

FOR WEEK ENDING OCT. 1st.

Number of trips made during week.—I.L. 17, H.P. 12, D.A. 22, M.A. 28, G.E. 12, K.L. 12, D.H. 1, P.O. 1.

Number of passengers carried.—I.L. 80, H.P. 103, D.A. 68, M.A. 26, G.E. 31, K.L. 11, D.H. 2.

Total number of trips by British machines: 53, carrying 253 passengers.

Total number of trips by foreign machines: 53, carrying 68 passengers.

Trips per day.—Monday 20; Tuesday 19; Wednesday 16; Thursday 12; Friday 18; Saturday 19; Sunday 2.

STATISTICS.

Machines, 106; Passengers, 321; Crews, 199; Total Personnel, 511

Corresponding week last year:—

Machines, 82; Passengers, 208; Crews, 105; Total Personnel, 313.

Corresponding week, 1920:—

Machines, 108; Passengers, 175; Crews, 132; Total Personnel, 307.

NOTES OF THE WEEK.

The Aircraft Disposal Company have as usual had a busy week carrying out test and delivery flights. On Monday Capt. Stocken brought a D.H.9a back from Brussels where it had been doing demonstration flights for the Belgian Military authorities. On the same day Mr. Perry was testing a Bristol Fighter and another one on the following day. On Wednesday Capt. Stocken was up on a "Tinsyde" and on the next day, after testing a D.H.9, he took that machine to Brussels. In the afternoon Mr. Perry put a couple of Bristol "Fighters" through their acceptance tests for an associated Government. On Friday Capt. Stocken went to Brussels to bring back a demonstration "Tinsyde" and Mr. Perry and Mr. Piercey left for Dublin on two Bristol "Fighters."

On Monday the Instone Air Line ran their last machine to Paris and back. Mr. Barnard was the pilot and the machine, a D.H.34, had a full load each way.

The Daimler Airway continued on to the end of this week on the Paris route, the machines from Paris carrying material from the Le Bourgêt office when there was room for it. They will probably open their Amsterdam service on Monday next.

Handley Page Transport now have a complete monopoly of the Paris line. They will continue with their midday service in each direction and this will be duplicated when necessary, which will probably mean every day.

The Instone Air Line inaugurated their Cologne service on Sunday. Mr. Barnard and Mr. Robins left on the Vimy but were held up in Brussels by weather. They arrived at Cologne on Monday morning at 10.30 hours.

The Daimler Airway on one day last week had an invalid lady passenger. She was driven in her car right up to the side of the machine, was comfortably ensconced on a couch-like arrangement in the machine and on arriving at Le Bourgêt was met at the side of the machine once again by another car. She went by air because she was unable to stand the rigours and hardships of the train and boat journey.

An experimental night service for one month is to be attempted by an R.A.F.-owned machine. This has been arranged by Sir Sefton Brancker. The start will be made in the next few days. The machine will leave Croydon one night and will fly to Le Bourgêt returning the following night, the object being to ascertain the percentage of reliability that can be obtained in one month.

On Wednesday Mr. F. C. Broome came over from Brooklands on a Vickers "Viking V." with a Napier engine en route from Madrid.

The Surrey Flying Services with Mr. Muir and Mr. Youell as pilots have been carrying joy-riders as usual.

It is expected that the big 24-seater Vickers "Vanguard," with twin-Napier engines, which is the commercial version of the "Victoria" troop-carrier, will come over to the aerodrome shortly. Mr. Rex Pierson, her designer, tells one that she got off in a very short distance with a full load and appears to be quite satisfactory.—G. D.

Stag Lane.

The De Havilland Aircraft Co. have had a very successful month of September, their fleet of aeroplanes having flown a total of 225 flying hours.

The Lympne-Ostende newspaper service ceased operations on September 23rd, after a record performance and the weekly Manchester service terminated at the end of the month, after running for six months. This service did not fail once, and as a result the De Havilland Co. received a

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eulogistic letter of thanks from the *Evening Standard* praising them on the way their service was operated under all weather conditions.

Various outstanding flights, such as Mr. Cobham's flight from Paris to London with photographs for the *Daily Sketch*, and Mr. Barnard's hurried tour of Europe have already been dealt with in The Aeroplane. In addition, the following towns have been visited in the course of their perambulations: Manchester, Cardiff, Dawlish, Bristol, Leeds, Liverpool, Torquay, Windsor, Wolverhampton, Cambridge, St. Andrews, Hertford, Dieppe, Le Touquet, Rotterdam, The Hague, Paris and Brussels.

There are now six pupils undergoing instruction on dual-control D.H.6s and D.H.9s. The Hon. Elsie Mackay, erstwhile Mrs. Poppy Wyndham, has passed for her Aero Club ticket, hence the decrease of pupils by one.

BY HANDLEY PAGE TO PARIS.

As one had to go to Paris for the Coupe Deutsch last week one was naturally delighted to accept the invitation of Mr. Cogni, General Manager of Handley Page Transport, to go thither in one of the Company's W.8s with Rolls-Royce engines. The machine, G-EBBG, was piloted by Major Foot and Mr. Bill Lockett was engineer There were nine other passengers including Mr. Dickinson, late of the Berkshire Aviation Co. and the Daimler Airway, and now a spare De Havilland pilot, and two cinema men complete with camera was fitted.

We got away in perfect weather with a good stiff following wind at 12.30 hrs. and in about thirty minutes left the coast at Dungeness which is about the bleakest looking place one has ever seen and an ideal place to murder one's wife, if any, when necessary.

As stated in previous descriptions of cross-Channel trips, one always feels rather pleased when the water stretch is left behind. But for some reason or other on this occasion one did not worry. Everyone has heard of "that Kruschen feeling" and "that horrid sinking feeling" and all sorts of other feelings but in the Handley Page one undoubtedly gets "that twin-engined feeling" which certainly does give one a feeling of security when over the water Or it may have been the fact that one was given confidence by learning from Mr. Herne that the upward currents from the Channel can be harnessed safely so that one can reach the shore even should both engines fail. As we crossed we noted the positions of all the "upward gusts" in the Channel as all the pilots are doing at Croydon, such is their unselfishness, so as to give Mr. Herne all the assistance possible in his great forthcoming Channel Glide.

We crossed the French coast near Berck and noticed a D.H.34 of Instone blue lying in a half-dismantled condition to the east of the road bounding Berck Aerodrome. This machine had swerved in taking off some days previously and had hit an iron direction post which tipped it onto its nose and damaged it considerably.

The trip to Paris was without incident and we landed at Le Bourgêt less than two hours after leaving Croydon.

One intended to return by H.P.T. on Sunday morning. On waking however it was pouring with rain and the clouds were only at a couple of hundred feet or so. Nevertheless the Handley Page car was in readiness at the Hotel Crillon and with nine other passengers including Mr. Dickinson who said that he did not know "why the weather was so —— rude," and Mr. Hazell Jones we went to Le Bourgêt. The weather seemed possible near Le Bourgêt, so with Mr. Olley as pilot, we left at 12.30 hrs. on G-EBBI. As soon as we got into the air we found the clouds were down to about 300 ft. and after wandering about the valleys and trying to find where we could find a place where the clouds were not enveloping the hill-tops, Mr. Olley wisely decided to return to Le Bourgêt. During our wandering about among the hills and valleys one again felt thankful for "that twin-engined feeling." Mr. Olley's judgment proved sound as the clouds proved to be down on the hills the whole way to the coast.

After waiting about until 14.30 hrs. one decided with Mr. Jones to catch the afternoon train and boat service to London. Had one realised then the messing about, fatigue and discomfort and length of time one has to go through when travelling by the ground and water route, one would have waited weeks for the weather to clear rather than face that awful journey and one thoroughly sympathises with those unfortunate individuals who either from religious or other scruples will not travel by air.

Paris is quite a nice spot and one should spend a night or so there occasionally just for practice. Going there always by air makes one think of the place as just next door. But for the unfortunate beings who go there by train it is in very truth a Sabbath day's pilgrimage and one would think more than twice before travelling there by antiquated methods again.

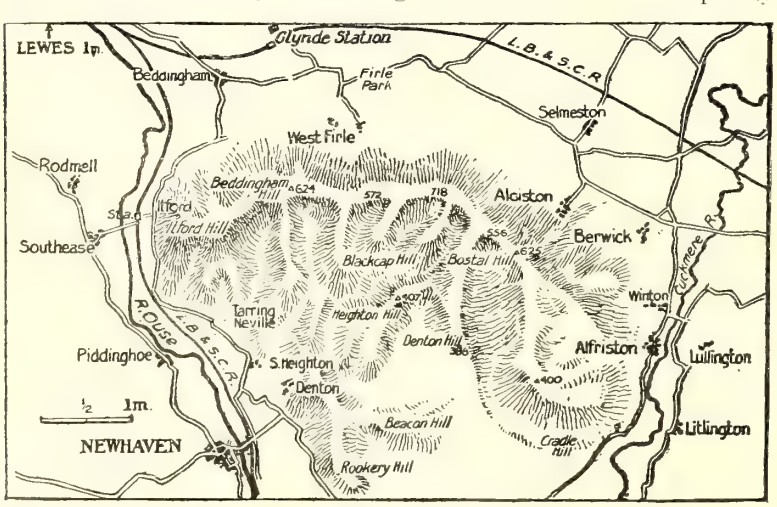
Suffice it to say that the journey divides itself geographically into three stages each of which occupies the length of an ordinary air trip over the whole route. There is an abnormal amount of messing about in between the three stages, the only gleam of pleasure being the sea-trip and that is not always so and one finally arrives in London very tired and exceedingly *"J'en ai marre"* (said he, knowing the language).

No doubt the ground route is a useful adjunct to the air route when the weather is impossible for air liners and it is essential to return inside of twelve hours, but it is not a journey to be made lightly or for those who do not like being messed about. One is glad to have made the ground trip once however but it is unlikely ever to occur again. And the air line people do at any rate understand the value of comfort and courtesy.—G. D.

SOME CUP!

The *Times* of September 28th, under the heading "Aerial Derby Celebration," says:—"The winning of the King's Cup in the Aerial Derby was celebrated at a dinner at the Carlton Hotel, given by Sir Samuel Instone, the owner of the successful aeroplane. Among those present were Captain F. L. Barnard, who piloted the winning machine; Mr. F. P. Raynham, who came in second, Mr. A. J. Cobham, who obtained third place in the race, Lord Gorrell, General Sir Sefton Brancker, Director of Civil Aviation, Sir William Carruthers, Mr. Samuel Samuel, M.P., Mr. T. Instone, General Festing, General Williamson, Captain Alfred Instone, and Lieutenant-Commander Perrin."

Evidently the reporter had celebrated the event adequately. The mixture of the King's Cup Race with the Aerial Derby seems to indicate that other mixtures must have had a part in producing this amazing result. Still Sir Samuel Instone's hospitality is proverbial. At the same time this is the first intimation that Sir Samuel owned the Carlton Hotel. But to whom he gave this nice hotel is not made clear.



THE "DAILY MAIL" £1,000 GLIDING COMPETITION.—The Royal Aero Club's official map of the Gliding Hill. The proposed slope is at Itford, but suitable slopes can be found in any direction of the wind.

A PRIZE FOR BRITISH GLIDERS.

According to the *Daily Mail* Lt.-Col. Ogilvie has offered a prize of £50 for the first British glider which makes a flight of one minute or over during the course of the gliding competition to be held at Itford Hill between October 16th and 22nd.

It has not yet been possible to obtain official information of the conditions attending Col. Ogilvie's offer and it seems improbable that the *Daily Mail's* statement can be strictly accurate. Any reasonably good glider should certainly be able to make a one-minute flight from the top of the hill at the first time of asking and the unconditional offer under those conditions may merely lead to a wild scramble to get off first at sunrise on the morning of October 16th.

It has been suggested that the prize might be more worthily allocated to the British glider which puts up the best aggregate of performances during the week.

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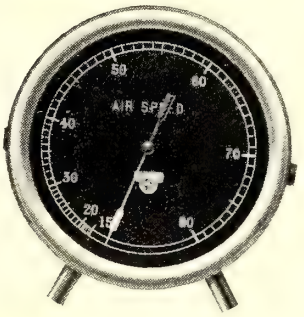


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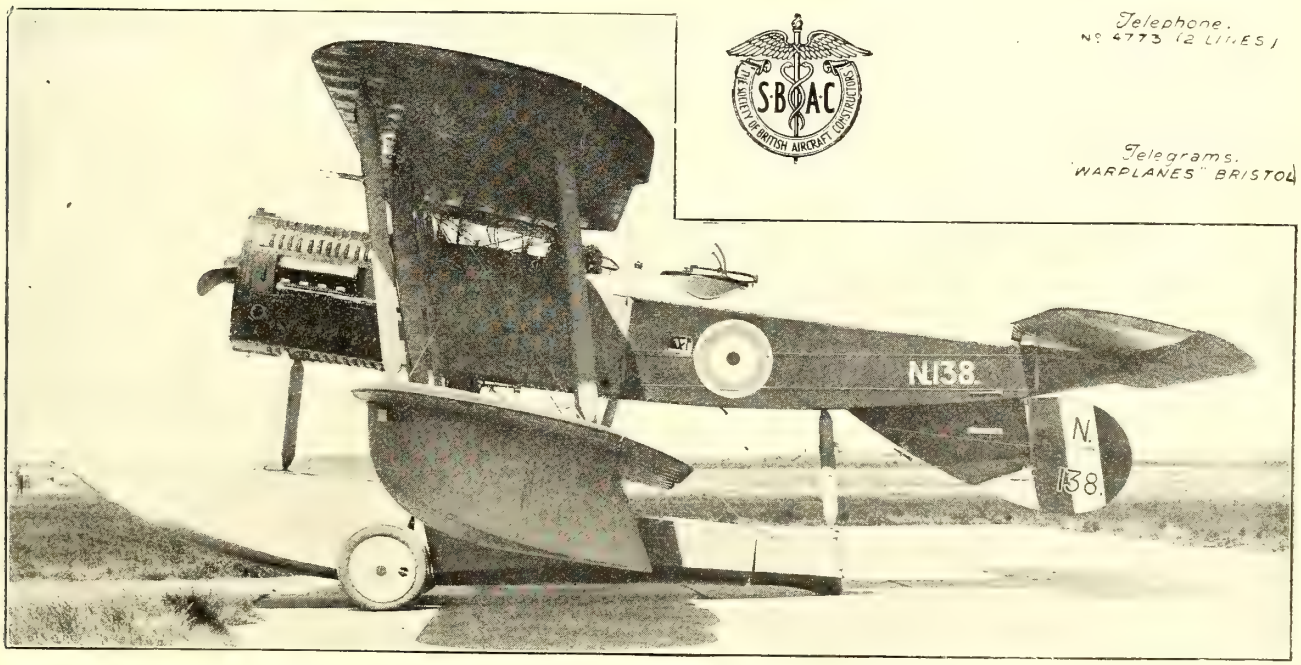
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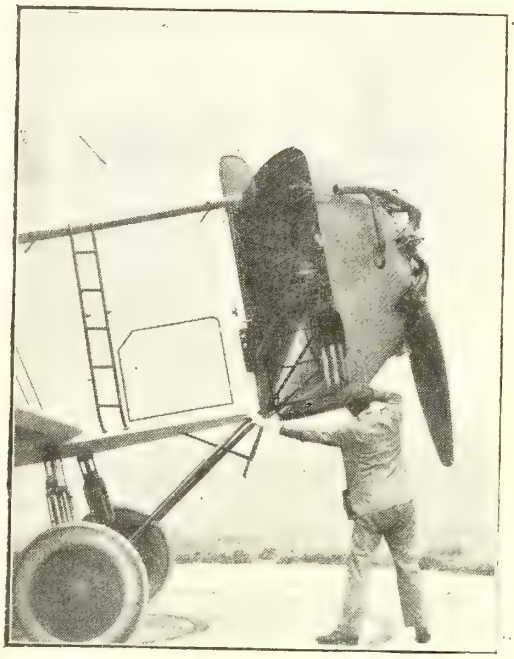
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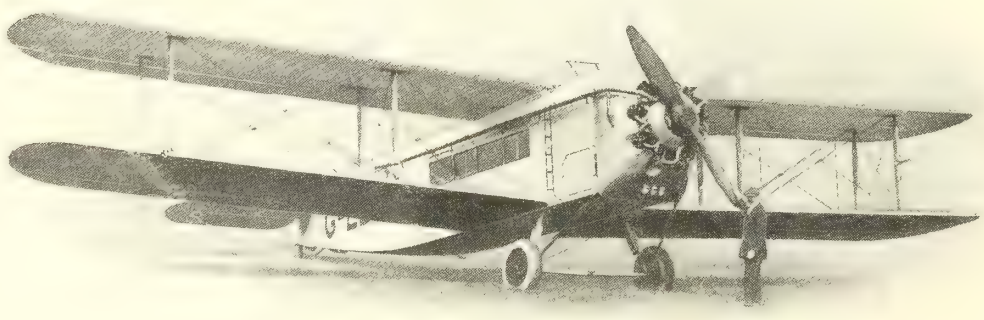
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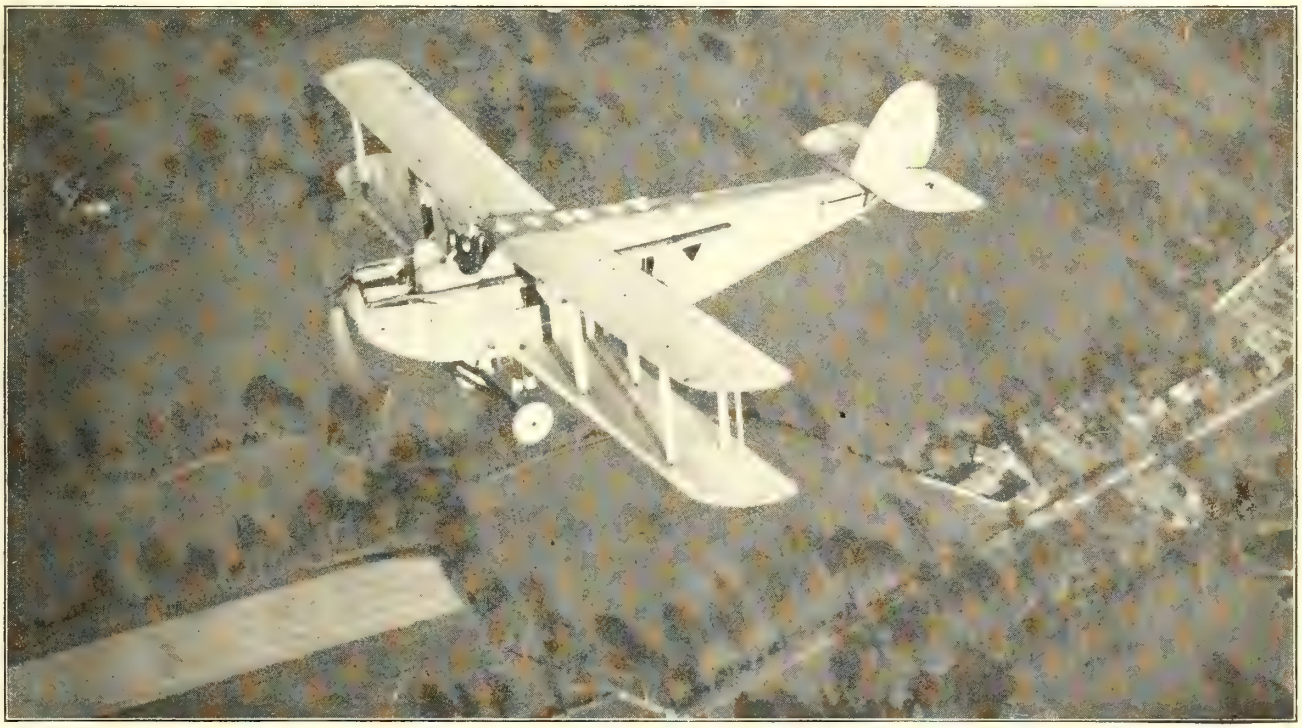
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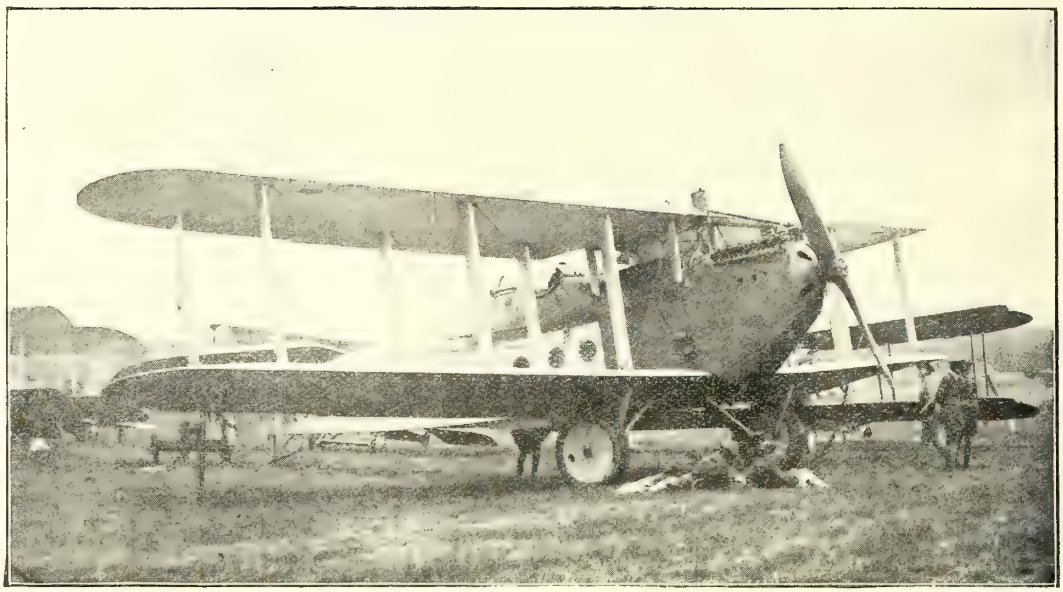
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ON THE R.A.F. RESERVE AND THE AUXILIARY AIR FORCE.

Judging by numerous letters received during the past few months from former pilots of the R.A.F. and by still more numerous conversations with former aviators who have now descended to mere commercial life it seems to be about time to discuss the chances offered by the R.A.F. Reserve and the Auxiliary Air Force for such aviators to "get a bit of flying again," as most of them put it. One does not pretend to have any official knowledge of the Air Ministry's plans for these forces. In fact so far as one can discover the final details of the organisations have still to be worked out before an official statement can be made on the subject. But certain basic principles have certainly been decided and from them it can be assumed that certain developments must follow logically.

One hears a bit here and a bit there about what is to be done or not to be done and it is possible to fill in the gaps with the help of a little imagination and a very slight knowledge of what the other Services do. And thus one can perhaps give some sort of outline of the general schemes for the R.A.F. Reserve and the R.A.F. Second Line for the benefit of the thousands of young or still nearly young men who want to fly and cannot afford to do so.

The Territorial or Auxiliary Force.

In the first place it is necessary to distinguish very clearly between the Auxiliary Air Force or Territorial Air Force, whichever ultimately becomes its official name, and the R.A.F. Reserve which is quite a different thing. It has been announced officially that we are to have five Auxiliary or Territorial Squadrons each stationed near one of our big cities. These are to be raised by the local Territorial Associations which already raise the local Territorial Battalions of the Army. Therefore it may be assumed that the said Associations will deal with them and with the Air Ministry in exactly the same way as they deal with the Territorial Battalions and with the War Office.

Now the first thing to remember in this connection is that a Territorial Battalion is a complete unit, integral in itself. The officers and men belong to their own platoons and companies and know one another as well as, if not better than, the officers and men of the Regular Army. It follows then that a squadron of the Auxiliary Air Force must be a complete unit. Officers and men will belong to their own flights and when mobilised for training each individual will have his own place in his particular flight. And so when war is declared each squadron will be as complete in itself as is a Regular squadron of the R.A.F., any shortage of personnel being filled up from the General Reserve of the R.A.F.

And the second thing to remember is that if the strict principle of the Territorial Force is followed there will be no place in the Auxiliary Force for ex-R.A.F. officers. It is to be presumed that the pilots of the Auxiliary Force will be young men who cannot afford to join the R.A.F. as permanent or short-service officers. They will be in effect part-time permanent officers, and so presumably will be caught young and trained to fly from the beginning. The problem of how or where they are to be trained and what the capitation grant is to be are matters which need very serious consideration.

A Very Serious Affair.

The importance of this point must be emphasised, for a good many officers and men seem to think that their local Auxiliary Squadron is going to be a jolly affair at which they can spend a pleasant Sunday afternoon or a Summer evening doing a bit of free flying at the Air Ministry's expense. As a matter of fact it seems that an Auxiliary squadron will be quite as serious a business as any Regular squadron, except that it will be only a part time job. Officers will have to take parades and men will have to do drills just as if they were in a regular squadron. The sheds and workshops will be the squadron's own affair and will have to be maintained at the same standard as those of a Regular squadron.

As in the case of Territorial Army units there will certainly be a Regular staff of officers and W.Os. and N.C.Os. for instruction, administration and what-not, but the personnel of the Auxiliary squadron will have to do a lot of hard regular routine work for comparatively little flying. It will not be by any means the joy-ride show which some people expect. And so much the better.

Just as some of the crack Territorial Battalions before the war were smarter than any except a few Regular units of the Old Army so the Auxiliary Squadrons of the R.A.F. will be expected to be up to the standard of the smartest Regular Squadrons. And this will be quite possible because the number of officers and men required for these squadrons is so small.

Small But Efficient.

As there are only five Auxiliary Squadrons in all, that means there will only be room for 60 pilots in the whole Auxiliary Air Force and for a corresponding number of men. There will presumably be room for a certain very limited number of technical officers, stores officers and other ground-wallahs, but there will be little opportunity for the class of man who before the war liked playing at soldiers in a Territorial Unit for the sake of parading in uniform once in a while. The officers of the Auxiliary Air Force will be flying officers, not ornaments. In spite of this, or rather because of this, one believes that there will be very keen competition to join the Auxiliary Force. There will be considerable distinction about being one of the chosen sixty.

A good many people had hoped that the Auxiliary Squadron might be built up to a full war establishment, that is to say 18 pilots, 18 observers, and a full 100 per cent. reserve of its own for each squadron: making thus 72 flying officers per squadron, or 360 for the whole Auxiliary Force. Apparently this is not to be so, but one does not know whether the objection is on the score of expense or because it is feared that it would be impossible to raise in each locality so many thoroughly keen officers.

So far as one can gather the scheme for the present is to keep down to the Peace establishment of 12 officer pilots per squadron and to depend on gunner-observers of "other ranks." This may prove an advantage in one way as it will almost certainly encourage enlistment among clever young mechanics who see a way through being gunner-observers to becoming N.C.O. pilots and ultimately to getting commissions.

The Aims of the Auxiliary Squadrons.

The purposes for which these Auxiliary Squadrons are to be used in case of war has been the subject of considerable discussion. As they are to be raised by the Territorial Associations it has been assumed by a good many people that their prime intention is Home Defence, which is to say that they will form part of a National Anti-Aircraft organisation, much as the 6th Brigade R.A.F. under Brig.-General T. C. R. Higgins was an integral part of the London Air Defence Area which was organised and commanded with such distinguished success by Major-General Ashmore. That would mean constant co-operation and training with the new Anti-Aircraft Territorial Units recently raised by the War Office. Also incidentally it would mean constant practise in night flying and above all in night fighting, which would present very considerable difficulties to a part-time personnel such as that of a unit of the Auxiliary Force.

It seems likely therefore that the Auxiliary squadrons will be Home Defence units on the good old Clausewitz principle that the best form of defence is attack. That is to say, being highly efficient units in perfect training, their first job will be to attack the enemy's Air Force at its starting point. If the enemy's aircraft can reach us then our Auxiliary units can reach the aerodromes or ships from which his bombers start. From which it may be deduced logically that the Auxiliary Squadrons will be mounted on big high-speed self-defending long-range bombers and torpedo machines, such as for example the Avro "Aldershot" or the Boulton and Paul "Bourges" or "Bolton" or one of the new Fairey or Parnall types.

If that be so, as it seems fair to assume, then obviously

the local aerodromes of the Auxiliary Force cannot carry the full squadron equipment, for a squadron of such machines would need all the attention of a full-time war-establishment personnel to keep them in order. It follows then that each squadron will probably have a flight of its war machines at its own aerodrome, the balance of its equipment being stored for it by the Regular R.A.F. Aircraft Parks or Depôts. But it is probable that a certain number of old war-time machines will also be kept at the Auxiliary aerodromes merely to provide flying practice for pilots and their gunner-observers.

It is particularly to be hoped that their active service equipment will not be the "next best" aeroplanes and engines of the Regular R.A.F. in the same way as the Territorial Gunners were equipped with guns of the type most recently discarded by the Regular Artillery. If the Auxiliary Squadrons are to use long-range bombers they should always be of the latest types.

Raising the Squadrons.

So far as raising these five squadrons is concerned, one believes that the Territorial Associations will follow Army practise exactly. They will do the enlisting and what one may call the business management. They will be given a capitation grant according to the number of officers and men raised. And they will get additional grants for efficiency and so forth. In other words they will be paid by results—contrary to the principles of the best Trade Unions—and the better and bigger the local unit proves to be the more money it will get to make it better still.

Thus healthy inter-City competition and local patriotism will be aroused and it is to be hoped that one of the most attractive features of future R.A.F. Pageants will be a competition between the squadrons of the Auxiliary Force, R.A.F. So much then for what may be called the Territorial squadrons. Let us now turn to the R.A.F. Reserve, which is quite a different matter.

The R.A.F. Reserve.

The whole purpose of the R.A.F. Reserve differs from that of the Auxiliary Force. At present there seems to be no intention of forming Reserve units complete in themselves on the analogy of the Militia in the Army. The R.A.F. Reserve is apparently to be a general reserve, a kind of pool for officers and men from which the Service units of the R.A.F. will be brought up to full war establishment immediately war occurs.

For a force of this kind no special units are necessary. All that are needed are a number of stations for flying practise and mechanical practise and a period of annual training during which officers and men will be attached to Regular units for a time long enough to remind them what it feels like to be members of a disciplined force.

One imagines that as a matter of fact the Reserve will at the start attract considerably more people than will the Auxiliary Force, seeing that the flying practice and mechanical practise can be done very much more when and where an officer or man pleases and that the one period of annual training will concentrate into itself an amount of work which in the Auxiliary squadrons will go on all the year round a bit at a time.

A Great Scheme for the Aircraft Industry.

The scheme for the practise flying of the Reserve is one which will meet with enthusiastic approval from everybody concerned, especially the Aircraft Industry. The Reserve pilots will practically be able to go and fly when they like and those firms which have private aerodromes or seaplane stations and maintain their own pilots and what are generally called an "out-door" staff of mechanics will be provided with just about as much work as they can do. One does not profess to know anything about the detail arrangements or the financial propositions involved, but in a general way the scheme is somewhat as follows.

A firm which has an aerodrome such for example as the Bristol Co. at Filton, Vickers Ltd. at Brooklands, the Westland Co. at Yeovil, the Avro Co. at Hamble and at Manchester, the Blackburn Co. at Brough, the De Havilland Co. at Stag Lane, or the Handley Page Co. at Cricklewood, will be asked to undertake to provide flying facilities for so many reserve pilots on land machines. Those which have seaplanes and slipways, such as the Fairey Co. at Hamble, the Supermarine Co. at Southampton, the Avro Co. at Hamble, the Blackburn Co. at Brough, or Short Bros. at Rochester will similarly be asked to provide facilities for practise on seaplanes. Possibly the Aircraft Disposal Co. and the Air Lines might come in on the scheme at Croydon.

The firms will presumably supply for this practise flying machines of their own makes and of the latest types in use by Service squadrons of the R.A.F. The firms' own test pilots will be more or less in charge of operations, to see for example that the machines are in proper flying trim and that when the Reserve pilots come up for practise they are competent to handle the machines on which they intend to fly. The firms' own out-door staff of engineers will keep the machines in order, with perhaps the help of Reserve mechanics who are doing their turn of practise as fitters and riggers.

Furthermore it is said that if the firms' own pilots and mechanics care to do so they can themselves join the Reserve and thus acquire or recover their Service rank when on duty. In such cases the firms will, one imagines, receive some sort of capitation grant for their services.

Thus each firm's aerodrome or seaplane station will become a minature R.A.F. station under the command of the former officers of the R.A.F. who are now in the employ of the firms concerned. The firms will be paid by the Air Ministry so much per head for the Reserve pilots who use their stations. And presumably some similar arrangement will be made for providing workshop space and instruction in new types and gadgets for Reserve mechanics. The machines used for this practise flying will obviously have to be in addition to those supplied for Service squadrons and the firm will draw a regular sum for maintaining them.

The Essence of Common Sense.

The whole scheme is so eminently sound and sensible from the tax-payers' point of view and so entirely to be desired from the Trade point of view that many people will refuse to believe that it can have been approved by any Government department. But, as one has frequently pointed out in this paper, the Air Ministry has quite a habit of seeming too good to be true and yet proving itself better even than it seems. From the Secretary of State and the Chief of the Air Staff downwards it has unconventional ways which are thoroughly in keeping with a department which has to deal with aircraft.

Like aeroplanes themselves the Air Ministry goes straight for its objective instead of meandering about or battering its way through in the manner of the older Services. And this latest scheme for flying practise and mechanical practise for the R.A.F. Reserve is about the most direct thing that could be imagined.

Not only will it provide the personnel of the Reserve with the easiest and most pleasant way of doing its work and not only will it help the Trade firms very materially by paying for the maintenance of their aerodromes and for their superfluous sheds and workshops and for out-door staffs which are only partially employed, but it will be of immense value in stirring up local interest in flying. When once it becomes the custom for reserve pilots to go down to their local stations on Saturdays and Sundays for practise the local people will flock to those stations to watch the flying just as to-day they flock to Croydon to watch the airline and joy-ride machines. And that is the best possible way to spread the gospel of aviation among the people of this country. It is a very great scheme.

Learning Efficiency.

The scheme also makes for efficiency in the personnel of the Reserve. First of all the Reserve pilots will have to rise to the level of the firms' crack test pilots in handling their machines in the air. This alone should raise very materially the quality of their flying. Also they will have the opportunity of seeing how the machines are handled on the ground and in the water by the firms' out-door staffs. Anybody who has seen a seaplane got out of or into the water at any ordinary R.A.F. station whose men have been trained in the leisurely methods of the Navy and has seen a machine of similar type swished out of or thrown into the water by the out-door staff of a seaplane firm which has to run its test work on a commercial basis will realise how much both officers and men of the Reserve will be able to learn from close contact with the mere Trade. It will be just as useful to them to see how land-going machines are handled on the ground and how minor repairs and adjustments are made in a hurry so as to get machines through tests against time.

There is no putting the machine away in the shed and saying that the job can wait till next day. If the test has to be done that day people hurry and get the job done and have the machine out for its test while daylight lasts. The out-door ground staffs of the big aeroplane and seaplane firms are men picked for their keenness and energy. Many of them are ex-R.A.F. men chosen by the test pilots as the star mechanics of their squadrons during the war. And that is just the right atmosphere for the Reserve pilot or mechanic of the R.A.F.

The Matter of Personnel.

Just how many officers and men will be wanted for the Reserve one has no idea. In due course, naturally, the Reserve will consist entirely of time-expired short-service officers and other ranks of the R.A.F., of whom already a

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large number are coming out from day to day and going into the Reserve. But one gathers that at the present moment the Reserve is a long way from being up to establishment and one imagines that there must be a good many hundreds of vacancies for pilots and several thousands for N.C.Os. and men to be filled by people who were demobilised from the R.A.F.

One knows many pilots who left the R.A.F. in disgust at the chaos which followed the war and others who left because they were fed up with flying. Of the former class the great majority now recognise that thanks to the strenuous work of the Staff during the last two years the R.A.F. is fully the equal of either of the other Services and almost qualified for comparison with the Old Army in matters of moral, smartness and keenness. Of the latter more and more every day are reaching that stage when one fine morning they look at the sky and say to themselves "What a gorgeous day for flying," which is the first symptoms of the return of the flying fever.

And besides them there are the really good fellows who were demobilised against their will by foolish C.Os.—who themselves have since been removed. These people have never lost their faith in the R.A.F. nor their love of flying. Some have tried over and over again to re-join the R.A.F. and have been turned down because of remarks made on their "papers" by the aforesaid C.Os. or because of mistakes in their records. Such pilots have in the Reserve a chance of getting back to flying and even, one believes, of wangling themselves back into the Regular R.A.F. as the result of good work at their Annual Training.

There seems to be a fear among some people at the Air Ministry that when the time comes to enter officers and men for the Auxiliary Force and the Reserve there will not be enough applications to fill the vacancies. Personally one believes this fear to be baseless. There may perhaps be a little difficulty at first in getting enough N.C.Os. and men, but one is fairly certain that as soon as the regulations for pilots are issued the Air Ministry will have more than enough.

And when the Auxiliary and Reserve stations once get fairly going we shall see a wholesale revival of public interest in flying. It will mark the beginning of a new epoch in the history of British Aviation.—C. G. G.

THE FURTHER HISTORY OF THE "BAMEL."

Taking it all round the English are not particularly popular in France at the moment, and on the whole one is not surprised at their unpopularity, for the Englishman in general is undoubtedly an unpleasant person. It is therefore both surprising and gratifying to find a French journalist defending in the very best vitriolic French style a British aeroplane with a British engine against a malicious attack by another French journalist. The sportsman in question is M. Roger Labric, of *L'Aero-Sports*, who has been roused to wrath by an article in *Le Journal* written by M. G. D. Raffalovich.

In the words of M. Labric, after describing the near-strangulation of Mr. James, "Our confrère (that is to say, Raffalovich) decidedly alert and *rusé*, pretends to have inspected the apparatus immediately after the flight (the Deutsch Cup failure), and discovers this: 'His indicator of vaporisation (otherwise his thermometer) indicated the number 110, that is to say, that his water had arrived at the state of ebullition. Besides, a slight fissure was perceptible below the upper plane of his apparatus and it is probable that, not wishing to lose it in the air, Herbert James had wisely preferred to stop himself rather than to risk the catastrophe.'"

M. Labric continues: "How the devil could James have, from the position of his seat, perceived this fissure underneath the upper plane, a fissure which does not exist and which never did exist except in the imaginative mind of Raffalovich? On the other hand, on the subject of the thermometer indicating the alleged 110 we have ourselves asked the competent advice of M. Lamblin, constructor of the Englishman's radiator, who has declared to us 'Not only has the thermometer never passed 70 degrees, but James and M. Folland, the engineer of the Bamel, have asked me to construct for them radiators of a still smaller model.'"

Furthermore M. Labric opposes to this fantastic article in *Le Journal* the just but severe article of M. Faroux in *L'Auto*. He says that when strangers give themselves the trouble to go and race in France they go to immense expense and it is thus in the manner of Raffalovich that they are consoled for bad luck. Not only does it show a lack of courtesy and of truth, but it is anti-sportive to the highest point. "Truly" he says "we have no longer the old chivalry of Fontenoy."

So far as M. Raffalovich is concerned one can only say that he is either a liar or a fool: possibly both. If he objects to the epithets applied to him one will have great pleasure in debating the point with him during the Paris Aero Show if he so desires. Meantime so far as words are concerned M. Labric seems to have said all that is necessary.

The Record Attempts.

Ultimately, on October 3rd and 4th, Mr. James did make official attempts to beat M. Sadi-Lecointe's record of 341.239 kilometres per hour for an average of four runs over the official kilometre, timed by MM. Carpe and Bazin, and officially observed by the commissaires of the French Aero Club, MM. Blanchet and Gougenheim and Major Etienne. His times were as follows:—

Oct. 3rd, 1922 (1st trial):—1 km. out, 11 3/5 secs.; 1 km. home, 10 4/5 secs. Average, 11 1/5 secs. = 321.428 km. per hr.

1 km. out, 11 1/5 secs.; 1 km. home, 10 4/5 secs. Average, 11 secs. = 327.271 km. per hr.

General average: 11 1/10 secs. = 324.349 km. per hr.

Oct. 3rd (2nd trial): 1 km. out, 11 secs.; 1 km. home, home, 10 2/5 secs. Average: 10 9/10 secs. = 330.275 km. per hr.

1 km. out, 11 2/5 secs.; 1 km. home, 10 2/5 secs. Average: 10 9/10 secs. = 330.275 km. per hr.

General average: 10 9/10 secs. = 330.275 km. per hr.

Oct. 3rd (3rd trial):—1 km. out, 11 secs.; 1 km. home, 10 2/5 secs. Average: 10 7/10 secs. = 336.448 km. per hr.

1 km. out, 10 2/5 secs.; 1 km. home, 10 2/5 secs. Average: 10 4/10 secs. = 346.153 km. per hr.

General average: 10 55/100 secs. = 341.300 km. per hr.

Oct. 4th (4th trial):—1 km. out, 10 4/5 secs.; 1 km. home, 9 4/5 secs. Average: 10 3/10 secs. = 349.514 km. per hr.

1 km. out, 11 2/5 secs.; 1 km. home, 10 1/5 secs. Average: 10 8/10 secs. = 333.333 km. per hr.

General average: 10 55/100 secs. = 341.423 km. per hr.

[Note.—The run in 9 4/5 seconds gives a speed of 367.346 kilometres per hour, and the run in 10 1/5 gives 352.941 kilometres per hour.]

As none of these beat M. Sadi-Lecointe's record by the four kilometres per hour necessary to establish a new world's record the official record itself still belongs to M. Sadi-Lecointe, but the "Bamel" has at any rate established the claim made for it in this paper last year, that it is the fastest machine in the world.

The stories of a 260 m.p.h. speed which appeared in the non-technical press last week resulted apparently from the efforts of a too-enthusiastic telegraphist.—C. G. G.

AN APOLOGY TO "THE TIMES."

In the issue of The Aeroplane dated October 4th on page 282 appeared a paragraph headed "Some Cup" in which a daily newspaper was quoted as mixing up the King's Cup and the Aerial Derby in connection with a dinner given by one of the magnates of aviation. This paragraph was ascribed to *The Times* when in fact it did not appear in that paper.

The error was due to a mistake on the part of a member of the staff of The Aeroplane whose duty it is to extract from the morning papers all references to aeronautical affairs and to mark the cuttings with the name and date of the paper from which they are taken. In this case the cutting was taken from another paper and marked by mistake as being from *The Times*. As the intimation of the mistake was only received from the manager of *The Times* on the morning of Press day it has been impossible to verify by the search of the files of other morning papers the particular paper from which the cutting was actually taken.

It has always been the aim of The Aeroplane to be absolutely accurate in its statements of fact, no matter how erroneous on occasion its opinions may be. Even the Directors of *The Times* newspaper itself cannot possibly be more annoyed at this mistake, due to pure carelessness, than one is oneself. Not only does one tender a most sincere apology to the Directors of *The Times* for the mis-statement of fact as it appeared in The Aeroplane but one apologises equally to the readers of The Aeroplane who may have been misled.—C. G. G.

THE ROYAL AERO CLUB DINNER.

The Committee of the Royal Aero Club has decided to hold a dinner at the Savoy Hotel, London, on Thursday, October 26th, to celebrate the British victory of the Supermarine (Napier-engined) Flying Boat, piloted by Capt. H. C. Biard, in the Jacques Schneider International Seaplane Race at Naples, and the holding of the Circuit of Britain Air Race for the cup presented by his Majesty the King.

The price of tickets (exclusive of wines, etc.) is £1 1s. each. Members may also obtain tickets for their friends (including ladies) to the extent of the accommodation available from the Secretary, 3, Clifford Street, W.1.

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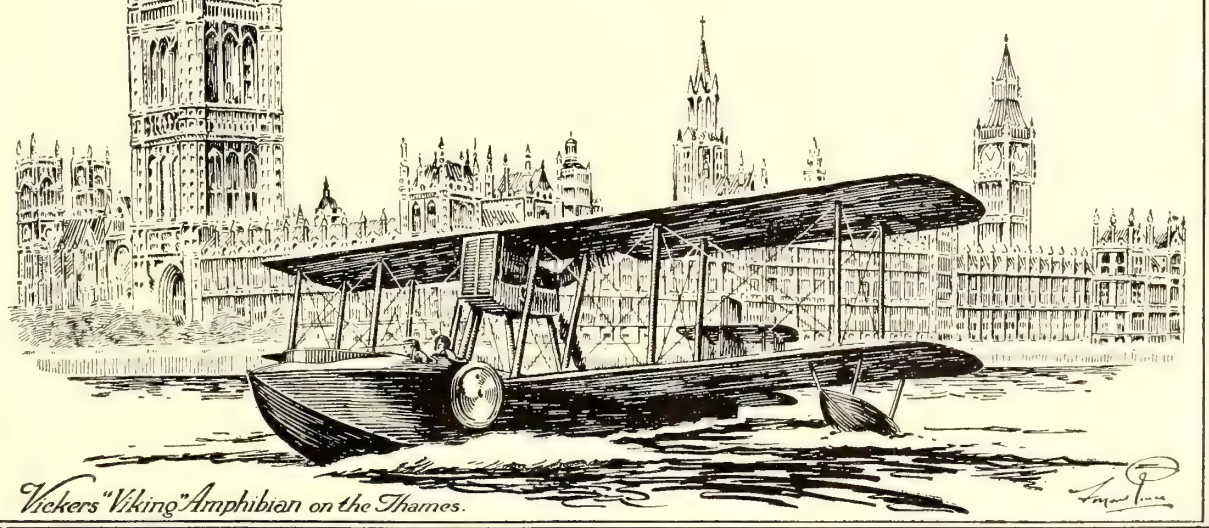
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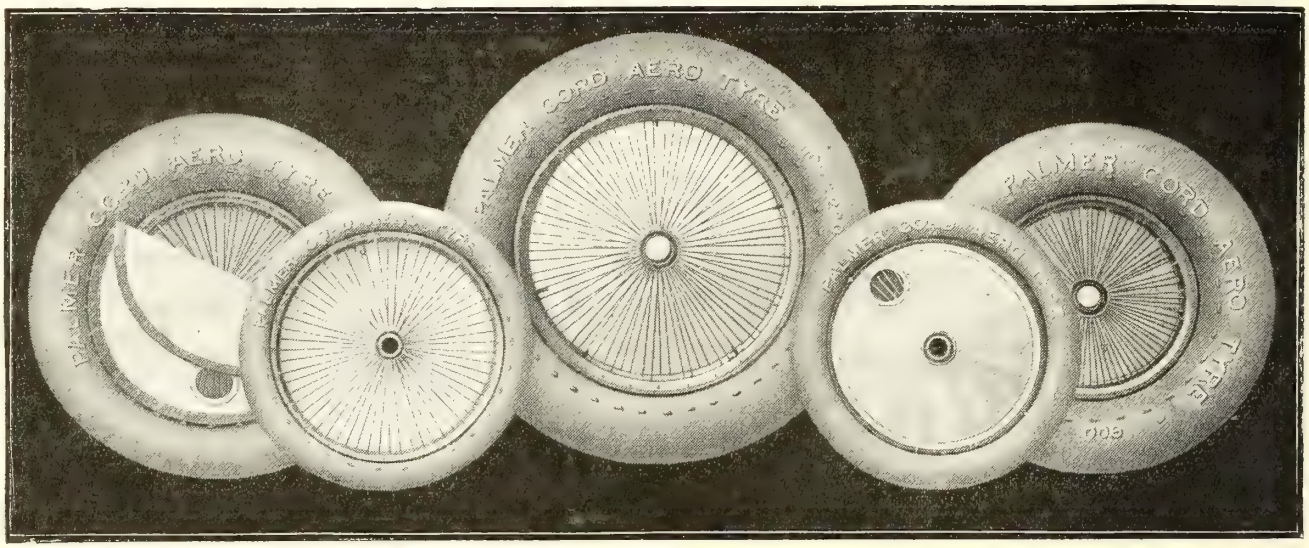
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,,	138	130.	38.09	Central
575×60	21	160.	28.	Central
,,	34	150.	31.75	104/46
,,	111	150.	38.09	104/46
600×75	21	160.	28.	Central
,,	34	150.	31.75	104/46
,,	111	150.	38.09	104/46
700×75	78	178.	44.45	132/46
,,	79	178.	44.45	Central
,,	100	178.	38.09	132/46
,,	101	178.	31.75	132/46
700×100	77	178.	44.45	132/46
,,	92	185.	55.	135/50
,,	95	185.	55.	Central
700×100	96	178.	55.	132/46
,,	99	178.	38.89	132/46
,,	112	150.	38.09	Central
650×125	119	178.	55.	132/46
750×125	77	178.	44.45	132/46
,,	92	185.	55.	135/50
,,	95	185.	55.	Central
,,	96	178.	55.	132/46
,,	99	178.	38.89	132/46
,,	112	150.	38.09	Central
800×150	82	185.	55.	135/50
,,	85	185.	55.	Central
,,	36*	185.	55.	135/50
,,	40*	185.	60.32	135/50
,,	152*	185.	66.67	135/50
,,	163	185.	66.67	135/50
1000×150	131	220.	66.67	Central
,,	102	185.	55.	125/60
,,	141	250.	80.	Central
,,	201	185.	60.32	125/60
1000×150	209	185.	55.	Central
,,	210	185.	60.32	Central
1000×180	148	220.	80.	Central
,,	149	185.	55.	Central
,,	155	220.	66.67	Central
900×200	107	185.	55.	Central
,,	108	185.	55.	125/60
,,	128	220.	66.67	Central
,,	137	250.	80.	Central
,,	202	85.	60.32	Central
1100×220	134	220.	66.67	Central
,,	136	250.	80.	Central
1250×250	133	250.	80.	Central
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THE WEEKLY COMMENTARY.

Capt. Sayers concludes his account of his visit to the Wasserkuppe with some notes on the more interesting of the machines which did not make great flights. In some cases these machines are as interesting as are the more successful ones—particularly the Aachen two-seater with Handley Page slotted ailerons.

Following this article there will be found a list of all the machines entered for this year's competition concerning which there is any data of interest.

This list may be directly compared with the list which follows it giving similar data concerning the French gliders at the Clermont Ferrand meeting, and with the entries for next week's *Daily Mail* contest.

The *Daily Mail* Gliding Competition opening at Itford Hill on Monday next, has attracted a surprisingly large number of entries considering how little notice was given to constructors and designers. Quite a fair number of these entries are to be taken seriously, and it is devoutly to be hoped that most of the others will materialise. If they do the meeting is likely to provide more amusement than anything which has happened for a long time.

A VISIT TO THE WASSERKUPPE—III.

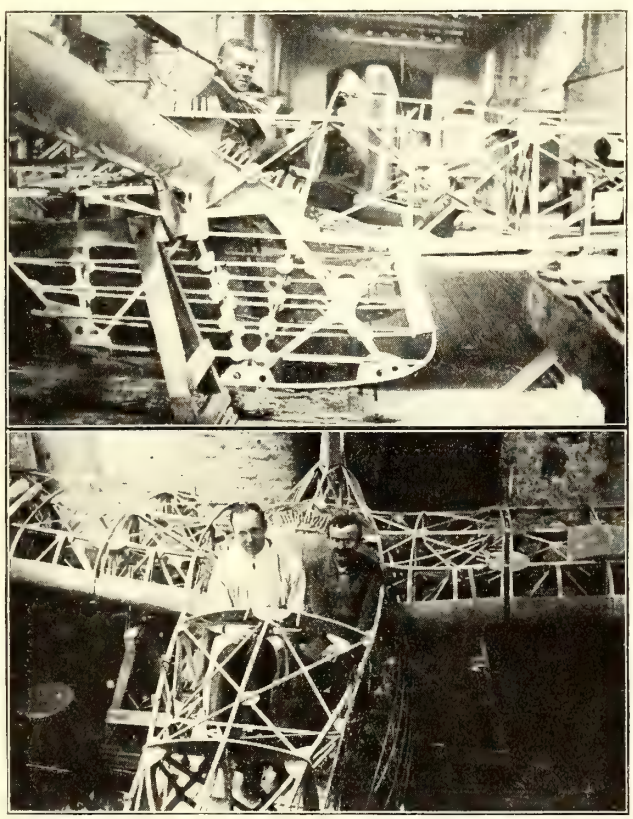
By W. H. SAYERS.

There were many machines other than those which may been mentioned briefly which doubtless deserve attention in some respect or another.

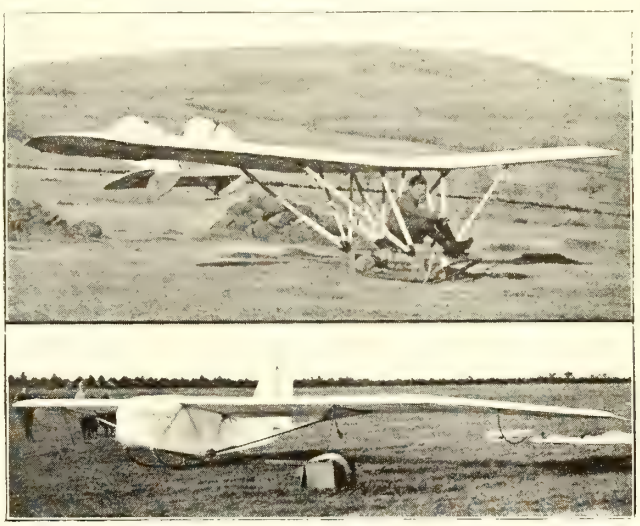
Probably the most interesting machine to make an appearance at this year's competition was the Aachen two-seater, designed largely by Professor Von Karman and flown by Dr. Klemperer.

This machine was of the "Canard" or elevator in front type, and was fitted with Handley Page (or one should here perhaps say Lachmann) slots in front of the ailerons so arranged as to open when the ailerons are pulled down.

Pilot and passenger sit side by side in the body in line with the leading edge of the wing, which is a cantilever monoplane. Behind the wing is an enormous fixed vertical fin. The front elevator is pivoted at the front end of the body so that it may operate normally as an elevator, it is also arranged to rock laterally—in which case it serves the purpose of a rudder—a fact which is probably news to the majority of present-day students of the art of flying, but which will be remembered by those who have amused or instructed themselves by flying tail-first models.



The Tail-first Aachen two-seater under construction. The photographs show the method of construction very clearly.



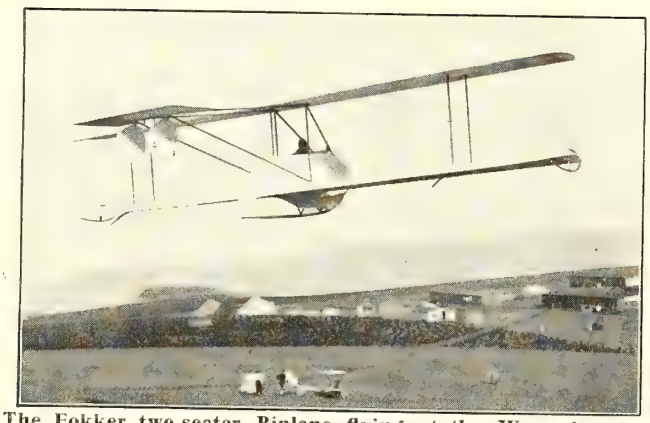
Top, the Weltensegler firm's school monoplane "Roland Festing." Below, the Berlin tailless monoplane which crashed on a trial flight.

The machine lands on a pair of long skids, carried by streamline "trousers" below the body.

The whole machine is extremely well-built, but in an amazingly complex manner. The whole structure is composed of small section struts and three-ply formers and joint plates. Some idea of this structure is given by two photographs here reproduced.

On trial the machine proved to be frightfully tail heavy, Dr. Klemperer was only just able to hold her at stalling point—this only thanks to the slotted ailerons—and she was badly damaged on landing. The machine is undergoing reconstruction and it is hoped that it will soon make another appearance.

Other interesting machines which met with misfortune in preliminary flights were the Stuttgart and Dresden monoplanes. These were both well designed and built cantilever monoplanes and may fairly be considered to be among the



The Fokker two-seater Biplane flying at the Wasserkuppe. Two Fokker biplanes are to compete in next week's "Daily Mail" contest.

serious soaring machines. Neither of them were to be seen at the time of our visit unfortunately.

Of the machines, which may be classed as plain gliders, the Dresden Biplane, the Darmstadt A.F.G.D.5 Biplane, the two Weltensegler school machines "Roland Festing" and "Frohe Welt" (monoplane and biplane respectively) and Herr Fokker's two-seater are all excellent machines. The difference in the performance of the two classes of machine may be best illustrated by the fact that with the exception of Herr Fokker's passenger flight of 13 minutes none of these machines made a flight of over 10 minutes, as against flights of at least 1 hour made by each of the four leading "soaring" machines.

The following leading particulars of the dimensions etc. of the German machines entered at Gersfeld are given in order that they may be compared with those of the leading French machines entered at the Clermont Ferrand meeting, and with such particulars as can be obtained of the entries for the forthcoming *Daily Mail* competition. The machines are given in the order of entry at the meeting so far as concerns the German and French machines.

Leading Particulars of Machines entered for the Rhon Competition.

In this list machines showing neither features of interest nor any noticeable performance have been omitted. When two or more machines of the same type were entered only one is described. The numbers are the official entry numbers.

(1) Aachen two-seater. Span 11.5 m., length 6 m., height 2 m., area 22 sq. m. 2-seater "canard." Pilot Klemperer, built by Aachen Flugzeugbau.

(3) Espenlaub cantilever monoplane. Span 17 m., length 5 m., height 1.5 m., area 17 sq. m., weight 108 kr. light, 178 loaded. Wing loading 10 kg. per sq. metre. Excellent glider—should soar if well piloted, but is not quick on lateral and rudder controls.

(6) Hannover "Vampyr" cantilever monoplane. Span 12.6 m., length 5.5 m., height 1.25 m., area 16 sq. m. Weight loaded 200 kg., loading 12.5 kg. per sq. m. Built by Hannover Wagon Fabrik to designs of Professors Madelung and Pröll. Flights up to 3 hours' duration and heights of 360 m. above start.

(7) Hannover "Greif" cantilever monoplane. Span 11.6 m., length 5 metres, height 1.1 m., area 15 sq. m., weight loaded 170 kg. (?). Flights up to 1 hour duration after the competition. Built by Hannover Wagon Fabrik to design of Dr. Pröll.

(8) Hannover "Mucki" monoplane. Span 12.2 m., length 5 m., height 1.7 m., area 15 sq. m. No records of performance by this machine.

(10) Harth Messerschmitt S.10. Tail boom monoplane with variable angle flexible wings. Span 14 m., length 4.5 m. height 1.3 m., area 19 sq. m. Built by Harth Messerschmitt. Flown by Freiherr Von Freyberg and Harth. Flights of a few minutes' duration. The type flew 22 mins. in 1921. Nos. 26 and 36 were of this type.

(12) Harth Messerschmitt S.12. Cantilever Parasol monoplane boat-built body. Variable incidence wings. Span 14 m., length 4.43 m., height 1.3 m., area 14.4 sq. m. Machine damaged on trial flights, no performances known. No. 40 same type did not appear.

(13) Weltensegler "Roland Festing." Monoplane school machine—with very strong undercarriage. Span 11 m., length 5 m., height 2 m., area 15 sq. m., weight about 200 kg. loaded. Piloted by Stamer, made flights of 1 min. 20 secs., etc.

(14) Weltensegler "Frohe Welt." School biplane "hang-glider." Span 8 m., length 5 m., height 2 m., area 20 sq. m. Also quite a good glider. Flights of 2 mins. or so by Stamer. No. 33 of this type also.

[A "hang-glider" is one in which the pilot suspends himself on his arms below the wings and controls the machine by balance in the manner of Lilienthal.—Ed.]

(15) Pelzner "Hang glider" biplane. Span 4 m., length 2.7 m., height 1.3 m., area 12 sq. m. Made multitudinous glides of 15 to 20 secs. duration.

(17) Darmstadt "A.F.G.D.4" ("Edith"). Rigidly braced monoplane. Span 12.6 m., length 5.5 m., height 1.6 m., chord 1.35 m., area 16 sq. m., weight loaded 165 kg., loading 11 kg. per sq. m. Flown by Botsch for periods of up to 20 minutes.

(18) Darmstadt "A.F.G.D.6." Cantilever monoplane. Span 12 m., length 5.5 m., height 1.25 m., chord 1.41 m. (taper at tips), area 14.3 sq. m., weight loaded 165 kg., loading 12.2 kg. per sq. m. Built by Bahnbedarf A. G. Darmstadt. Flown by Hackmack. Flights up to 1 hr. 20 mins.

(19) Darmstadt "A.F.G.D.5." Biplane—with tail booms. Span 7.5 m., length 5.5 m., height 2.5 m., chord 1.3 m., area 18 sq. m., weight loaded 125 kg., loading 7 kg. per sq. m. Should glide quite well, but does not appear to have taken part in the competition.

(20) Aachen. Cantilever monoplane. Span 9.7 m., length 6.3 m., height 1.5 m., area 16 sq. m., weight 135 kg. loaded, loading 8.4 kg. per sq. m. Entered by Mr. J. Jeyes of Northampton, but did not reach the tests. The machine is of the type used by Dr. Klemperer last year and has been entered for the *Daily Mail* competition by Mr. Jeyes.

(21) Frankfurt. Cantilever monoplane. Span 11 m., length 7 m., height 1.8 m., area 18 sq. m. Flights up to 1½ mins.

(24) Stuttgart. Cantilever monoplane. Span 11.6 m., length 5.5 m., height 1.7 m., area 16 sq. m., weight load 150 kg., loading 9.4 kg. per sq. m. Flown by Brenner. Flights of up to 9 minutes.

(28) Dresden 1921 biplane. Span 9 m., length 4.6 m., height 2 m., area 18.7 sq. m. Flown by various pilots. Flights up to 9 minutes.

(29) Dresden 1922 monoplane. Span 12.6 m., length 4.5 m., height 1.4 m., area 15.5 sq. m. This machine was crashed on August 17th on a trial flight.

(31) Hamburg. Monoplane. Span 13 m., length 5 m., height 1.2 m., area 20 sq. m. The machine made flights of a few seconds only.

(32) Berlin. Monoplane, swept-back wing tips and no tail. Span 15.2 m., length 4.5 m., height 1.2 m., area 20 sq. m. Designed and built by the Berlin Technical High School. The machine landed on its wing tip on August 13th and was damaged.

(34) Weltensegler "Baden Baden Stolz" monoplane, cantilever swept-back wings. Span 15 m., length 4 m., height 2 m., area 16 sq. m. A machine essentially of "Dunne" type. No flight recorded. No. 44 same type.

(35) Weltensegler "Feldberg." A similar machine but with wings supported by a girder bracing below. Span 15 m., length 4 m., height 2 m., area 16 sq. m. No record of flight.

(37) Fokker. Biplane with tail booms. Span 9 m., length 5.6 m., height 2.27 m., area 27 sq. m. Single seater—no record of performance.

(38) Fokker. Biplane with tail booms. Span 12 m., length 5.6 m., height 2.27 m., area 36 sq. m. Two-seater. A dis-



Botsch flying on the Darmstadt "Edith." On the ground the Dresden school biplane—an excellent glider.

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...roydon Pilot Completes the Home Journey in One and a Half Hours.

By OUR AIR CORRESPONDENT.

Mr. Donald Herne made a trip from Croydon to Paris and back in 4½ hours yesterday.

He left Croydon at 1 p.m., reached Paris at about 3.20 p.m., and after filling up with petrol started on the return journey at 4 p.m.

"I got to Abbeville," he told me, "in 35 minutes, and an hour after leaving Paris I was in mid-Channel."

He landed at Croydon at 5.30 p.m.

Incidentally, the machine he flew, G-EBBS, has done 80,000 miles since April, when she was launched at Stag-lane, Edgware.

This is equal to a distance of more than three times round the world.

COTT...

"Evening News,"
London, September.

Napier engined aeroplanes have won the Aerial Derby on two successive years, and on August 12th last, when fitted to a Supermarine, won for Great Britain the International Flying Boat Trophy —Schneider Cup.

In the last British Government Aircraft Competitions, the only engine fitted to the machines to secure the highest prizes in all three classes was the 450 h.p. Napier.

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tinctly good glider. Took 13 minutes to glide from the top of the Wasserkuppe to the valley carrying a passenger.

(43) J. Kempf. Biplane "Hang glider." Span 5.5 m., length 3.15 m., height 1.4 m., area 13.5 sq. m. Made one or two flights of a few seconds each.

(46) Sultan. Biplane "Hang glider." Span 6.5 m., length 3.1 m., height 1.6 m., area 14.5 sq. m. Flights of up to 6 seconds.

(47) Drude monoplane. Span 10 m., length 5 m., height 1.5 m., area 15 sq. m. 7 secs. flight.

48) Rhön Segelflug Verein. Biplane, 6.5 m. span, 4 m. long, 1.8 high, area 16.5 sq. m. Made a number of flights of up to 48 secs.

(50) Aachen S.B.2. Monoplane wth variable incidence wings. Designed for gust soaring by E. Von Loessl, built by Caspar Werke, Travemunde. Only short test flights made.

(51) Aachen S.B.3. Monoplane with elastically mounted wings. Designed for gust soaring by E. Von Loessl, built by Caspar Werke, Travemunde. Test flights of 2 to 3 minutes after the competition.

(52) Munchen "Finsterwald" monoplane. Span 12.5 m., length 4 m., height 1.2 m., area 15 sq. m. Made flights of 30 seconds.

FRENCH GLIDERS ENTERED AT THE CLERMONT MEETING.

In the following list only such of the machines as show definitely interesting features—or which put up some sort of a performance are included.

Numbers which are missing therefore indicate machines concerning which one has no data of interest.

(2 & 3) De Monge. Monoplane generally on the lines of the machines sketched by Capt. Sayers some months ago as illustrating "How an efficient Pusher might be built." Body a fattening up of the wing section, tail booms and skids carried from the wing. Span 11 m., length 7.62 m., surface 25 sq. m., weight loaded 155 kg., loading 6.25 kg. per sq. m. Only one of these machines appeared at Clermont, but it was crashed on a trial flight.

(4) Nessler. Biplane with tail booms. Reminiscent in general form of the Curtiss of 1910. Span 6 m., length 4.5 m., surface 18 sq. m., weight 135 kg., loading 7.5 kg. per sq. m.

(5) De Woitine Cantilever monoplane, circular fuselage and Göttingen 441 section tapered wings. Pilot's head projects through wing top. Span 11.3 m., length 4.85 m., area 11.5 sq. m., weight loaded 155 kg., loading 13.7 kg. per sq. m. Flown by Barbot this machine was probably the best glider at the meeting and made real soaring flights of up to 4½ mins. Had the pilot had greater experience it would probably have done even better. From the Puy de Dome flew 8 mins. 56 secs.

(8) Coupet cantilever monoplane. Span 11 m., length 6m., surface 20 sq. m., weight loaded 115 kg., loading 5.7 kg. per sq. m. A clean machine which performed quite well—up to 5 mins. with real soaring effects.

(13) Deshayes. Cantileer monoplane, with very fat, short body and wings capable of variation in incidence. Span 16 m., length 5.2 m., area 22 sq. m., weight loaded 175 kg., loading 7.8 kg. Stalled and nose dived on trial flight—photographs show elevators fairly hard up and machine with nose well down.

(15) Chardon. "Hang glider" of Lilienthal type. By great activity in running back up the hill and jumping off again Chardon registered a total time in the air of 34 m 15 s., made up of flights of 10 sec. to 40 sec.

(19) Farman "Moustique." Braced monoplane, really an engined machine with engine removed. Span 10 m., length 6 m., surface 12 sq. m., weight loaded 115 kg., loading 9.6 kg. per sq. m. Flown by Bossoutrot made flights of up to 5 mins. 18 secs. and soared.

(23) Henri Potez. Biplane—practically a Potez type VIII sporting single-seater without engine. Span 8 m., length 5.87 m., area 21 sq. m., weight loaded 185 kg., loading 8.8 kg. per sq. m. Won the prize for longest distance with 5.85 km. from the Puy de Dome and made numbers of flights of two minutes' duration or so.

(26) Peyret. Langley type monoplane, two approximately equal planes pilot seated between. Control by ailerons, which work in opposite senses on forward and aft planes for elevator control, and in the normal manner for lateral control. The machine made flights of up to 47 seconds' duration.

(39) Aeronautical Engineering Society (Massachusetts Institute of Technology). Cantilever monoplane. Span 7.5 m., length 4.5 m., area 11 sq. m., weight loaded 110 kg, loading 10 kg. per sq. m. A machine with circular fuselage and tapered wings, pilot between main spars. Flew quite well—flights up to 2 mins. or so.

(40) Louis Clement. Triplane. The curious machine which was exhibited at the 1920 Paris Aero show with a "Y" Anzani engine and at the 1921 show as a glider. Span 5.5 m., length 3.5., area 12.5 sq. m., weight loaded 160 kg., loading 12 kg. per sq. m. The machine glided at great speed and crashed landing early during the meeting.

(41) Dewoitine—as No. 5.

(42) Levasseur-Abrial. Cantilever monoplane of excellent workmanship. Span 12.2 m., length 6.1 m., area 20 sq. m., weight 165 kg., loading 8.2 kg. per sq. m. Appears to have flown well and is credited with the lowest rate of descent recorded at the meeting.

(43) Dits Moineau. Monoplane with monocoque fuselage Span 12 m., length 5.5 m., area 18 sq. m., weight loaded 125 kg., loading 6.9 kg. per sq. m. No record of performance.

(45) Bonnet. Biplane of normal fuselage type. Span 8.74 m., length 5.3 m., surface 18 sq. m., weight loaded 140 kg., loading 7.75 kg. per sq. m. Made many flights but none of great length.

(47) Farman. Biplane, practically a Farman "Sport" without engine. Span 9 m., length 7 m., area 25 sq. m., weight loaded 200 kg., loading 8 kg. per sq. m. Did many flights and performed quite fairly.

(48) Verrimst-Maneyrol. Monoplane. Span 10 m., length 4 m., area 23 sq. m., weight loaded 225 kg., loading 10 kg. per sq. m. Wings of very curious shape arranged to hinge backward and forward relatively to the body for longitudinal control, also to change their incidence as desired. Very short tail and very small fixed horizontal fin. Piloted by Maneyrol, the machine made a short glide, but was far too sensitive on controls and was damaged.

ENTRIES FOR THE "DAILY MAIL" COMPETITION.

At the moment of going to press the following particulars are available as to the entries for the *Daily Mail* gliding competition. No attempt has been made to distinguish between the "serious" and the "comic" competitors. Readers must take their choice.

Where the loading per sq. ft. is known the figure has been translated to kg. per sq. m. to facilitate comparison with the figures already given for the German and French machines.

Handasyde Aircraft Company. Cantilever monoplane, 30 ft. span, 17 ft. long, 3 ft. 6 in. high. Weight without pilot 160 lbs. Thick tapered wings, built on two spars with three-ply on leading edge. Morane type elevator, skid undercarriage. Pilot sits between main wing spars. Surface about 140 sq. ft., loading about 2.4 lbs. per sq. ft. (11 kg. per sq. m.). Pilot Mr. F. P. Raynham.

H. E. Waite, Morecambe, Lancs. Monoplane, span 54 ft., length 15 ft., height 4 ft. 2 in. No weights available. Wing tips rise and fall under pilot's efforts. Pilot H. E. Waite.

The British Helicopter Co., Humber Road, Blackheath. Monoplane Helicopter, 10 ft. long 8 ft. 6 ins. high, 15 ft. span. Two-man power pedal drive. Pilots, F. J. N. Purton and P. A. Purton.

J. J. O'Freddy, 36 St. Martin's Lane, W. Biplane, length (span?) 39 ft., height 8 ft., span (?length) 21 ft. Weight about 150 lbs. Power provided by pilot "padling." Pilot, J. J. O'Freddy.

Charles Frobisher, Shiregreen, Sheffield. Monoplane, span 30 ft., length 15 ft., height 5 ft. Weight light about 100 lbs. A pedal driven flaping wing machine. Pilot, C. Frobisher.

A. P. Maxfield, Gravelly Hill, Birmingham. Biplane, span 26 ft., length 18 ft. 6 in., height 5 ft. Weight light about 110 lbs. Pilot A. P. Maxfield.

H. S. Dixon, 11 Woodgrave Avenue, Ealing Common. Monoplane ornithopter, span 30 ft., length 13 ft., height 6 ft. Weight about 60 lbs. Pedal driven flapping wings. Pilot, H. S. Dixon.

George England (1922) Ltd., Walton on Thames. Cantilever monoplane, span 28 ft., length 17 ft. 6 in., height 2 ft. 10 in., weight light 85 lbs, loaded 230 lbs. Area approximately 120 sq. ft., loading approximately 2 lbs. per sq. ft. Designed and to be flown by Mr. E. C. Gordon England. Pilot sits between wing spars in a nearly square section fuselage. Skid undercarriage.

A. H. Knott, Landon, near Swansea. Monoplane, span 4 ft. and 20 ft. (?), length 12 ft., height 4 ft. Weight not over 80 lbs. light. Pedal driven airscrew provided. Pilot A. H. Knott.

J. Jeyes, Northampton. Aachen (Klemperer) monoplane. Span 32 ft., length 20 ft. 9 in., height 5 ft. Weight light 132 lbs., 280 lbs. loaded. Area 172 sq. ft.. loading 1.63 lbs. per sq. ft. (8.4 kg. per sq. m.). This is a machine of the type which was flown with great success by Dr. Klemperer at the 1921 Rhön meeting. It is an extremely clean cantilever monoplane with wings set at a considerable dihedral and rising from the bottom of the fuselage. The undercarriage consists of a pair of streamline trousers carrying skids. The fuselage is roughly circular in section. The machine is

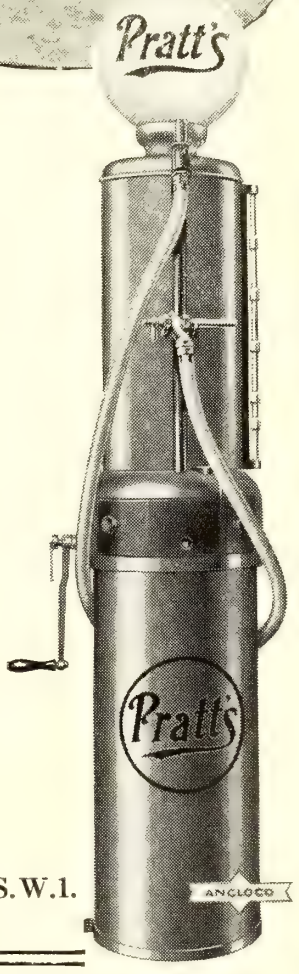


Photo by J. T. Roberts, Croydon.

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extremely cleverly designed, and is built up entirely of small section timbers with three-ply stiffening pieces. Pilot Mr. J. Jeyes.

J. H. Robertson, 1, Albemarle Street, W.1. Patent wing monoplane. No details given.

Messrs. Wright, Sayers and Courtney. Cantilever monoplane. Span 42 ft., length 22 ft. 5 in., height 5 ft. 7 in. Total area 235 sq. ft. Weight empty approximately 190 lbs. Loaded 360 lbs. Loading 1.5 lbs. per sq. ft. (7 kg. per sq. m.). This machine follows very closely the design of the Hannover "Vampyr" but uses a thinner section wing of greater chord which accounts for the increased surface. Lands on skids under fuselage. Built by Central Aircraft Company. Pilots, Major M. E. A. Wright and Mr. F. T. Courtney.

F. W. Merriam, Wroxhall, I.O.W. Cantilever monoplane. Span 38 ft., length 18 ft. 11 ins., height 4 ft. Weight empty 200 lbs., loaded 360 lbs. This machine is reported to be also modelled on the lines of the Hannover "Vampyr" and is of roughly the same dimensions and weight as that machine. It is being built by Messrs. Merriam and Newman and will be piloted by Mr. Merriam.

De Havilland Aircraft Co., Ltd., Edgware. Braced monoplane. Span 50 ft., length 26 ft. 6 in., height 9 ft. 7 in., approximate weight empty 250 lbs., loaded 400 lbs. Pilot Captain H. S. Broad. This machine is a fuselage monoplane with top and bottom bracing wires. The wing section is a flat, high efficiency section and it is hoped to keep the loading to a very low figure. The machine is fitted with a skid undercarriage.

J. M. Hargreaves, 39 Lynmouth Road, Reading. Biplane, Span 25 ft., length 20 ft., chord 4 ft., gap 4 ft. The wings are sparless wood covered

C. Christopher, 166 Manchester Road, Warrington. Monoplane ornithopter. Span 25 ft., length 18 ft., height 12 ft., weight 50 lbs. Hand-driven wings. Pilot C. Christopher.

G. W. Cain, 16 Stapleton Hall Road, N.4. Monoplane. Span 36 ft., length 17 ft. 6 in., height 4 ft., weight 120 lbs. This machine is to be provided with pedalling gear for starting purposes only. Pilot G. W. Cain.

E. T. Prosser, Craigmore, Oakfield Road, Selly Park, Birmingham. Biplane. Span 40 ft., length 29 ft., height 8 ft. 9 in. Weight about 190 lbs. Pilot E. T. Prosser.

A. H. G. Fokker, Amsterdam: (a) Biplane. Span 8 m. (26 ft. 3 in.), length 6 m. (19 ft. 6 in.), height 2.25 m. (7 ft. 5 ins.), weight 90 kg. (198 lbs.). (b) Biplane. Cantilever dimensions, weight 80 kg. (176 lbs.). (c) Monoplane. Span 10 m. (32 ft. 9 in.), length 6 m. (19 ft. 6in.), height 2.25 m. (7 ft. 5 in.), weight about 90 kg. (198 lbs.). Pilots A. H. G. Fokker and Capt. W. Hinchliffe. The two biplanes are presumably of the two-seater type used by Mr. Fokker in this year's Rhön competition. The monoplane is new.

Lt.-Col. C. O. Smeaton, C.B. Monoplane. Span 23 ft., length 16 ft. 6 in., height 3 ft. 9 in., weight 140 lbs. (light). Built by Mr. W. L. Jennings. Pilot Lt.-Col. Smeaton.

W. L. Jennings. Monoplane. Span 23 ft., length 16 ft. 6 in., height 3 ft. 9 in., weight 140 lbs. Sister machine to Lt.-Col. Smeaton's entry. Pilot W. L. Jennings.

Louis Peyret, Courbevoie, France. Langley type monoplane. Span 6.65 m. (21 ft. 9 in.), length 5.5 m. (18 ft.), height 1.75 m. (5 ft. 9 in.). Pilot Maneyrol. The machine entered at the French trials and made short flights.

S. H. G. "Skuse." Monoplane. Span 41 ft. 6 ins., length 15 ft., height 4 ft., chord 5 ft., tapering to 3 ft., weight light 114 lbs. Pilot S. H. G. "Skuse."

The Inventions Development Syndicate, 43, Johnson Street, Westminster. Monoplane. Span 36 ft., length 14 ft., height 13 ft. No arrangements provided for the provision of motive power by pilot yet. Pilot R. M. Balston.

Hakim Rajah Singh, 81, Upper Stanhope Road, Liverpool. "Bengalee" monoplane. Span 19 ft., length 15 ft., height 4 ft. 6 ins., weight 116 lbs. Pilot Hakim Rajah Singh.

In addition it is understood that several French entries, including Boussotrot with the Farman "Moustique," and Barbot on the Dewoitine monoplane are to be expected.

At the last moment the following additional entries are notified:—Maison Dewoitine, Sq/Ldr. A. Gray and F/O. W. S. Buchanan, R.A.F., Northolt, Capt. R. H. Stocken (Aircraft Disposals Co. monoplane), Mr. Donald Herne (De Havilland monoplane), Messrs. Brynhildsen and Winchester, Mr. A. Jackson, Mr. N. R. Gordon and G. W. Kingwell and Son.

Prospects for the Competitors.

It will be seen that among the entries there are quite a fair number of machines which can certainly be regarded as serious competitors, and a number of others which promise to provide quite a good deal of interest and amusement.

Every effort has been made to secure more detailed information as to the machines, but owing to the very short time which has been available for design and construction, the majority of the entrants have not had time to prepare drawings or to give very full information.

It has, therefore, seemed advisable to postpone any attempt to deal with the machines in detail until it has been possible to inspect them at the actual gliding ground.

But from what is known there is certainly good ground for believing that a really serious start has been made on this business of gliding in England. The Competition may or may not be a success. The very short time available for test and tuning up of machines, the lack of practical experience on the part of pilots, and the possibility of a week of thoroughly unsuitable weather, all make it possible that the results obtained may prove to be somewhat meagre. But gliding will not cease with the competition, and there is quite a possibility that Itford Hill will become a centre of experimental activity.

It has many advantages for the purpose, so far as gliding is concerned. It is not at all a bad locality for tests on what one might call auxiliary engined gliders, and if the Royal Aero Club would do something towards fitting up a corner of one of the tents as a gymnasium, wherein pedalling and other man-power enthusiasts can keep themselves fit in the intervals of reconstruction, a permanent camp at Ilford might do a lot towards reproducing to some extent the joyous conditions which obtained in the pre-war aviation centres.

In one's technically editorial capacity one learns not with entire joy of the schemes of various well-intentioned inventors who believe they have solved the secret of man-power flight. Translated into frantic activities on the crest of Ilford Hill the joy which is somehow missing from these schemes in their immaterial form could scarcely fail to be revealed.

On these grounds alone it seems necessary that something should be done to provide a permanent centre for experimental work of this kind. Probably if the matter were rightly presented a subsidy from *Punch* could be managed.

THE £1,000 GLIDING COMPETITION.

The Gliding Competition for the prize of £1,000 offered by the proprietors of the *Daily Mail*, which is being organised by the Royal Aero Club, will take place at Itford Hill, near Lewes, from October 16th-21st, 1922. Members wishing to witness the competition from areas closed to the public may obtain permits on application to the club.

The following Subsidiary Prizes have been offered:—

£50 (presented by Lieut.-Col. Alec Ogilvie, C.B.E.) to be awarded to the British competitor who remains the longest time in the air in one flight in accordance with the regulations on the first day of the competition, the flight to be of at least one minute's duration.

£50 (presented by the Royal Aero Club) to be awarded to the British competitor in a British glider who remains the longest time in the air in one flight, in accordance with the regulations on any day October 16th-21st, 1922, the flight to be of at least five minutes' duration. This prize is only open to British competitors who do not win either of the prizes presented by the proprietors of the *Daily Mail* and Col. Ogilvie.

THE NEW DURATION RECORD.

A new Duration Record has been put up in the United States by Lieuts. John Macready and Oakley Kelly, U.S. Army Air Service. Starting from San Diego at 08.00 hours on October 6th, they alighted on October 7th at approximately 19.18 hours, having remained in the air for 35 hrs. 18 mins.

They originally intended to fly non-stop from San Diego, California, to New York but were stopped by fog, and so decided to go for the Duration Record instead. They deserve the heartiest congratulations on a very fine performance. So far the type of machine and engines used is not known, but it is hoped to give a full account of them at an early date.

GETTING AHEAD OF THE "MAIL."

A small leaflet has just been circulated in London which reads as follows:—"An epoch-making event in the history of Peacehaven. Fokker, the Flying Dutchman and Glider, holder of the World's Record for Motorless Flying will, together with his colleagues, give the first real Exhibition of Gliding in the United Kingdom at Peacehaven from October 10th to October 14th, 1922. . . ."

"On October 10th the celebrations in connection with the opening of the Hotel Peacehaven will take place. All rooms are engaged for October 10th, but particulars of vacancies after that date can be obtained from the manager."

Peacehaven it may be well to state is a sort of Bungalow Town situate a little west of Newhaven and the demonstration thus advertised is part of the very energetic publicity campaign undertaken by the company which is developing this particular piece of plateau.

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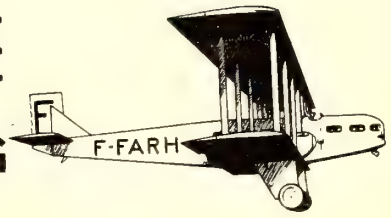
C.M.A. Air Lines is the British title of the Compagnie des Messageries Aériennes, whose head office is at 2, Rue Galilee, Paris. The Company was originally founded early in 1919, by M. Louis Breguet, for the transport of goods from Paris to Lille, the ground communications having been so much disturbed by the European War. This line, which was the first commercial aviation service in the world, was soon extended to Brussels and the line from Paris to Brussels has been maintained by the Company ever since.

In September, 1919, a service between London and Paris was inaugurated in conjunction with Handley Page Transport, Ltd. This was originally operated three times a week each way, but later, when the two Companies separated, a daily service was commenced, which has now been extended to a thrice daily service. Générale By an arrangement with the Compagnie Transatlantique a service is run to connect with the arrival and departure of this Company's sailings between Le Havre and New York. This is the first occasion on which a large shipping company has recognised the necessity of using commercial aviation in its transport policy.

The Company's service has now reduced the time of transit between London and Paris to two and a-half hours; between London and Le Touquet to one and a-quarter hours; between Paris and Brussels to two hours and between Brussels and Amsterdam to two hours. A line has been inaugurated to run direct from London to Marseilles, calling at Paris and Lyons and connecting with the Steamship Lines to India and the East. This brings Marseilles within eight hours' reach of London and Lyons within six and a-half hours.

The C.M.A. Passenger Service is maintained by twin tractor Farman Goliath Biplanes, fitted with two 360-h.p. Renault Engines and with a seating capacity for 12 passengers, pilot and mechanic. This machine has a wing-span of 92 ft., a length of 49 ft. 6 in. and a height of 16 ft. Its cruising speed is 93 m.p.h. The freight, mail and newspaper services utilise the smaller type of single-engined Spad and Breguet.

The Compagnie des Messageries Aériennes is an association of aircraft constructors, for the study and application of Aerial Transport, and among its Board of Directors appear the well-known names of Messrs. Blériot, Breguet, Caudron, Farman, Morane, Luquet de St. Germain and Renault.—*Extract from R.A.F. Year Book.*



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CONTINENTAL ARRIVALS AND DEPARTURES.

ABBREVIATIONS:—A.D.—Aircraft Disposal Co. B.A. Berkshire Aviation Co. B.C.—Bristol Aeroplane Co. C.A.—Department of Civil Aviation. D.A.—Daimler Airway. D.H.—De Havilland Aircraft Co. G.E.—Compagnie des Grands Express Aeriens. H.P.—Handley Page Transport Ltd. I.L.—Instone Air Line. K.L.—Koninklijke Luchtvaart Maatschappij. L.A.—Leatherhead Aviation Services. M.A.—Messageries Aeriennes. M.W.—Marconi Wireless Telegraph Co. Ltd. P.O.—Privately owned. W.A.—Westland Aircraft. S.F.—Surrey Flying Services. S.N.—Belgian transport company.

ANALYSIS OF FIGURES.

Week ending Oct. 8th, 1922:—

Number of trips made during week.—I.L. 15, H.P. 14, D.A. 12, M.A. 26, G.E. 12, K.L. 12, D.H. 7.

Number of passengers carried.—I.L. 75, H.P. 135, D.A. 20, M.A. 40, G.E. 44, K.L. 8, D.H. 8.

Total number of trips by British machines: 48, carrying 238 passengers.

Total number of trips by foreign machines: 50, carrying 92 passengers.

Trips per day.—Monday, 12; Tuesday, 17; Wednesday, 16; Thursday, 11; Friday, 13; Saturday, 22; Sunday, 7.

STATISTICS.

Machines, 98; Passengers, 330; Crews, 159; Total Personnel, 489.

Corresponding week last year:—

Machines, 75; Passengers, 227; Crews, 98; Total Personnel, 325.

Corresponding week, 1920:—

Machines, 131; Passengers, 222; Crews, 152; Total Personnel, 374.

NOTES OF THE WEEK.

The Aircraft Disposal Company this week have been busy working over-time building the glider that Capt. Stocken will fly in the Competition. It has been designed by Major Grant and is a monoplane of 45 feet span following closely in general outlay the "Vampyr." It should be ready by to-day or to-morrow and will be tested at the aerodrome later in the week by being catapulted into the air. An old "Snipe" minus engine will previously be the victim of the catapult. Judging from the position of the catapult at the moment one has many fears for the safety of the water works chimney. The glider itself incorporates the sound workmanship which is so well known in everything turned out by the Disposal Company and reflects great credit on Major Grant and Mr. Olney. The detail work has been carried out by Mr. Rankin.

On Tuesday Mr. Piercey tested a "Tinsyde" and the following day Capt. Stocken was out on a D.H.9. The following day he was again out on the same machine and Mr. Perry and Mr. Piercey were testing "Tinsydes." On Friday Mr. Perry was up on a D.H.9 and on Saturday he tested another after which effort he, Capt. Stocken and Mr. Piercey left for Brussels on D.H.9s. Capt. Stocken left Brussels again about 17.00 hrs. on an S.E.5a and arrived at Croydon after dark.

On Sunday Major Grant and Capt. Stocken paid a visit to Itford Hill taking with them Mr. Deane who made meteorological observations of the wind currents with balloons.

Handley Page Transport Ltd. carried 135 passengers on the Paris service last week. If the weather ever becomes fine and there is a big rush of passengers they will no doubt have to put on extra machines.

The Daimler Airway are still running the early morning paper service to Paris and by arrangement with Handley Page Transport Ltd. carry a certain number of passengers back from Paris when the machine returns.

The Daimler Airway began the Rotterdam service this week and will soon extend to Amsterdam. As soon as sensible arrangements can be made between Germany and the Commission Aeronautique Inter-Alliée the Daimler machines will run right through to Berlin. The very first two passengers to go to Rotterdam by the first Daimler machine on Monday morning this week arrived at the aerodrome and wanted to book through to Berlin. They were very much annoyed to find they could not do so.

The service will also be extended in the other direction to Manchester. Perhaps Bradford would be even more useful as that city is alleged to be populated mostly by Germans.

The Instone Air Line Ltd. carried a large number of passengers on the Cologne service. The majority of these are through bookings to Cologne, though a certain number of seats in the machines are reserved for passengers who only want to go as far as Brussels. These seats are invariably filled

On Saturday morning Mr. Alan Butler went to Paris with a friend in a D.H.9c piloted by Mr. Shepperson. Mr. Shepperson returned with the machine late in the evening. The same day Mr. Broad in a D.H.16 G-EALM also went to Paris and returned the following day. On Sunday morning Mr. Alan Cobham left for Constantinople with two Government officials, one of them Major-General Sir Warren Hastings Anderson, K.C.B., on Mr. Butler's D.H.37. At the moment of writing no news has been received as to whether or not they have arrived.

Mr. Shaw has been out during the week on the Marconi Avro and Mr. Muir and Mr. Youell have been taking passengers daily for joy-rides on the Surrey Flying Services' Avro.

On Wednesday of last week members of a Japanese mission in London visited Handley Page Transport and were taken up in a W.8b piloted by Major Foot for a flight over London to Cricklewood. They circled round over the West End for some time and were served with lunch on board during the trip and all of them were very delighted with the experience.—G. D.

Brooklands.

The Rolls-Royce "Eagle IX." was to be tested in a Vickers "Vulcan" at Brooklands, during the week-end. Mr. Muller informed one that it would be "run up" on Friday, and seeing a "Vulcan" floating about on Saturday and hearing it giving forth a decidedly "Rolls" and "un-Lion" note one presumes that the "Eagle IX." was duly tested.

The "Vixen," an all-purposes war machine with a top speed of about 160 m.p.h. will be out shortly, and other interesting machines are in various stages of construction in the Vickers' works.—J. F. S.

A FATAL ACCIDENT AT SWANSEA.

On the evening of October 2nd an Avro biplane fell into the sea off Swansea and its three occupants Messrs. F. Bush (the pilot), Evan Williams (the owner) and Sergt.-Major Biggins (late R.A.S.C.) were drowned.

The machine had ascended from Swansea sands and after a flight of half-an-hour it appeared to be returning to land when it fell into the sea four hundred yards from the shore. Several people swam out to the machine, but attempts to release the occupants failed. A pilot cutter from the Mumbles arrived shortly afterwards and towed the machine into shallow water.

The machine was one of four purchased from the defunct Welsh Aviation Co. Ltd. by Mr. Evan Williams, a well-known Neath money-lender and turf-accountant, early this year, who had the intention of operating a joy-riding concern in South Wales during this past summer but of which nothing has been heard prior to this accident. Of the pilot, little is known, except that he had achieved some success in local motor-cycle races.

HIGH EFFICIENCY BRISTOLS.

The Australian agents for the Bristol Aeroplane Company Ltd. have written to the firm as follows:—

"The 'Bristol' Tourer which we supplied to the Controller of Civil Aviation some time back is in our hangar at present. . . . This machine has now done approximately 15,000 air miles and has made many landings in strange country, and has even been through the telegraph wires once or twice. However, it is still flying satisfactorily and looks in splendid condition. . . . No doubt you are also aware that the Western Australian Service (using 'Bristol' Tourers) has now been running for some months at approximately 100 per cent. efficiency."

These figures, remarkable as they must seem to people who are only accustomed to automobiles and similar unreliable mechanisms, are only what might have been expected from vehicles of such proved efficiency as the Bristol aeroplanes.

"THE BROKEN WING."

For the first time that one can remember aviation has been put upon the dramatic stage really well. "The Broken Wing," the new American play at the Duke of York's Theatre is not only well written but it is also well produced and brilliantly acted.

The theme of the play centres round a heroine in Mexico upon whose house an aeroplane crashes during a thunderstorm. The pilot is so seriously injured that he loses his memory but later rebuilds the machine and flies away complete with heroine.

As regards the aviation parts they were to all intents and purposes technically accurate. A crash might quite conceivably look like that represented on the stage though one could not quite see the point of the accompanying display of squibs and crackers. Quite how so complete a "write-off" could have been repaired by a man with a lost memory one failed to see. Moreover the machine was apparently a Curtiss with a stationary engine and yet when flying it gave forth a distinct "rotary" note. Also the pilot evidently had great confidence in this engine as he never bothered to run it up before flights, but this was possibly due to the fact that the open country seen out at the back rendered forced landings in the event of engine trouble perfectly safe.

Francis Lister as the pilot gave an exceedingly good impression of the early war type of flying officer and Mr. Thurston Hall as the villain resembled strongly what M. Sadi-Lecointe will look like by this time next year if he goes on increasing in bulk at his present rate.—G. D.

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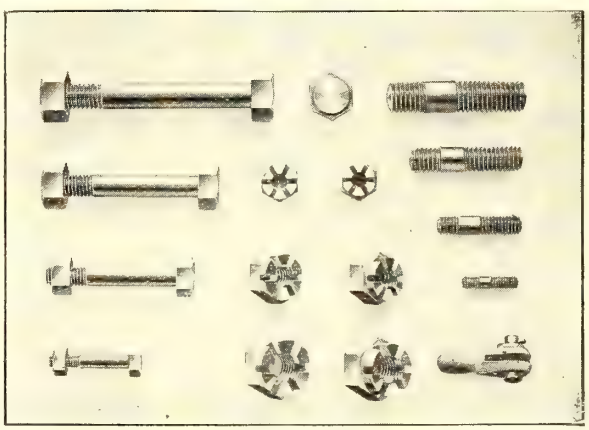
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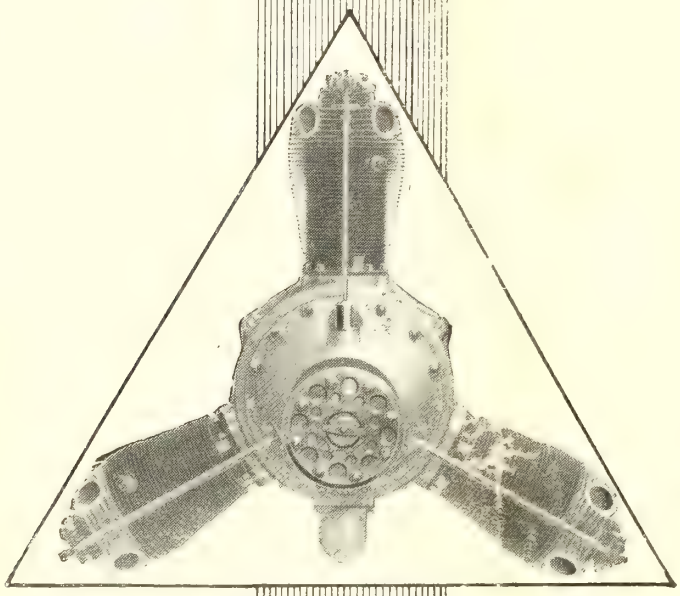


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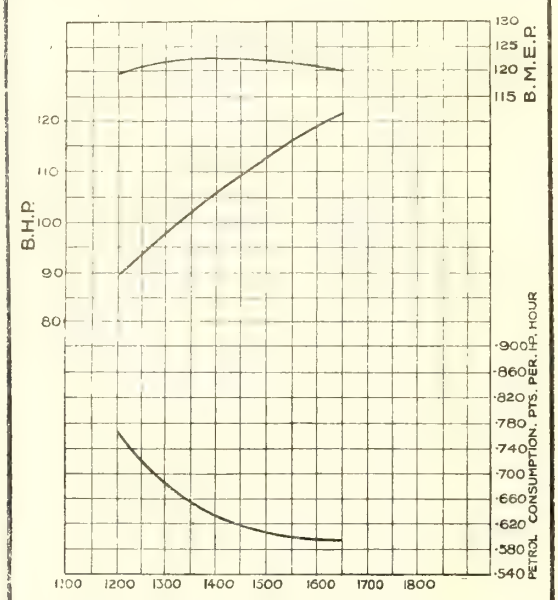
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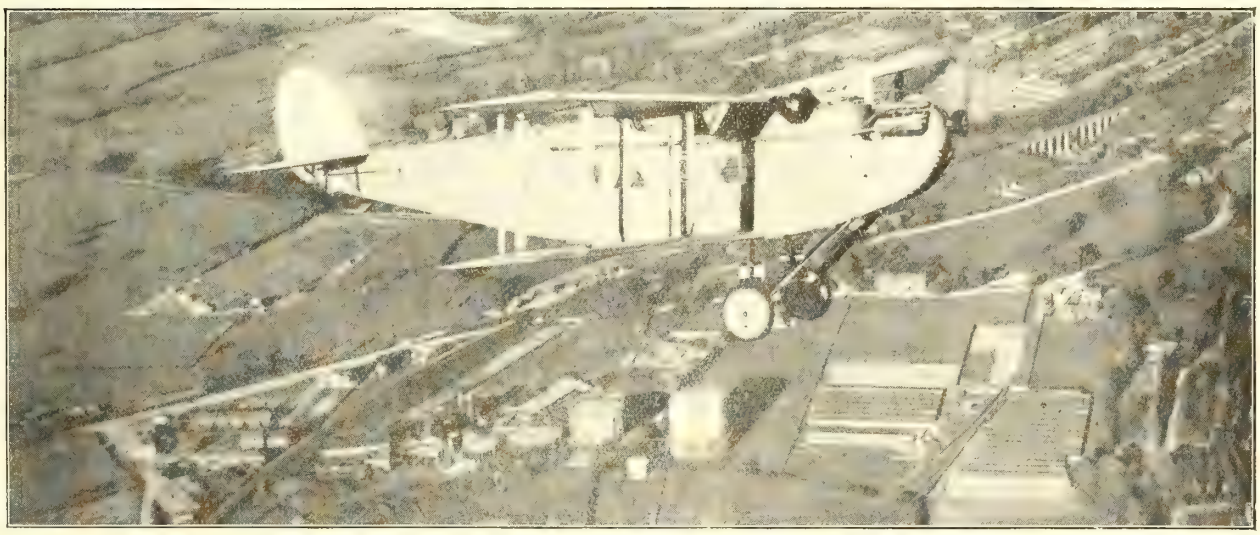
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Edited by C. Grey

WEDNESDAY, OCT. 18, 1922.

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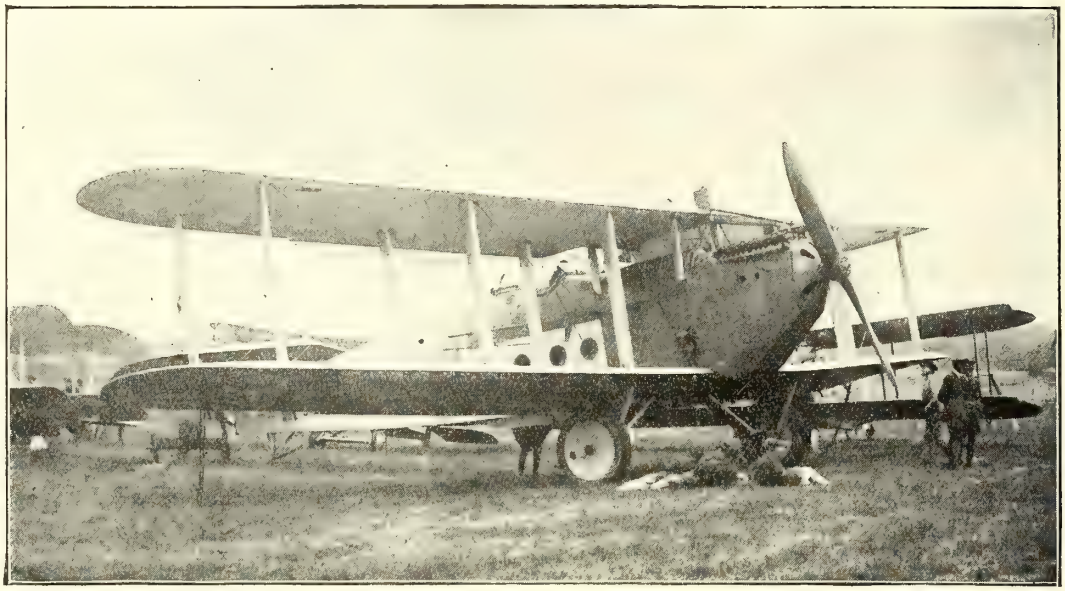
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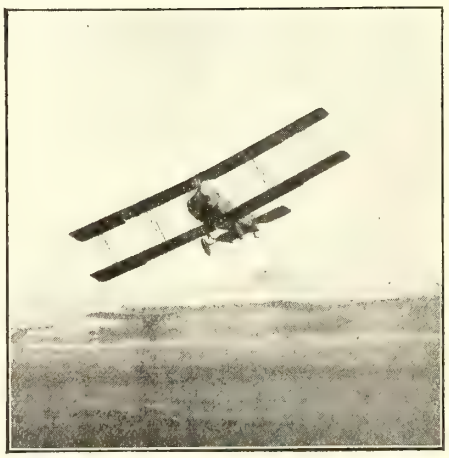


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ON THE GLIDING COMPETITION.

Even the *Daily Mail* which seemingly controls all things, from cabbages to Kings, or at any rate from sweet peas to Premiers, cannot control the weather, so for the week before the opening of the £1,000 Gliding Competition the wind insisted on blowing hard from the East in which direction there are no nice gentle slopes for gliding practice on the Firle-Itford Ridge. What was wanted was a nice steady South wind blowing up the slopes from Newhaven, so that the pilots who had never glided before might have a little practice in gliding before they attempted to soar.

As it happened it did not matter a great deal for, with the true British faculty for doing everything at the last moment, only four machines out of the thirty-five or so which were entered were ready for use when one arrived on Saturday at Asham Farm, where the tents were placed. These were Mr. Gordon England's own-built machine, Mr. Fred Raynham's Handasyde, Mr. Jeyes' Klemperer and M. Barbot's de Woitine, all monoplanes.

Mr. England and Mr. Raynham took their machines to the top of Itford Hill, which was promptly called "Hill 60" by Mrs. Vincent Nicholl in recognition of the enormous number of deaths from heart failure which are bound to ensue sooner or later among those who are called upon to climb it—a grim witticism in the best aviation manner. Personally one did not see any corpses lying about, but having climbed that miniature mountain four times in two days one regards doing so as what the French call a *supplice* or a *Calvaire*.

Anyhow, when one arrived on the top of Hill 60 on Saturday there was nothing to see for a while except a very good view and the machines of Messrs. England and Raynham at rest. Presently Mr. Raynham did some launching practice, up-hill against the wind. Strong men with elastic ropes of the kind known to the public as "Sandows," and in the early R.A.F. as "bunjy," ran vigorously towing him like a kite for some ten seconds or so, and then fell exhausted. But two trips of ten seconds were enough to show Mr. Raynham that the machine was in trim and answered her controls properly.

Mr. Jeyes tried a little glide from the spur at the foot of Hill 60 where the sheds are placed but did not get off properly owing to the two over-enthusiastic "troops" of the R.A.F. hanging onto his wing-tips too long. It was probably just as well, for he would only have run across the little branch valley into the down-current from the higher spur on the opposite side and have planked into the hill side.

Asham Farm, one may explain, is situated in a North-facing valley between the Westernmost and second last spurs on the North face of the ridge which has Firle Beacon as its highest point at its Eastern end and Itford Hill, or Hill 60, at its most Western end. At the top of this delightful valley, just where it opens out on to the bare side of Hill 60, is a row of tents in which the competing machines are housed. There are the real head-quarters of the Royal Aero Club during the day, though for some unexplained reason Mr. Perrin the Secretary chose the singularly undelectable village of Seaford as the night head-quarters although Brighton is so little further away that it is just as quick to reach owing to the badness of the road to Seaford.

The ridge itself is very steep on the North side, and the chalk has been cut by erosion into a series of valleys, each of which is like a half of a tun-dish which has been cut in two vertically. When there is a strong North wind as there was on Sunday October 8th it blows into these cups and sends up the most amazing vertical draughts. Which fact probably inspired one of the humorists of aviation to tell a somewhat anxious pilot that unless he had the wind up it was obviously impossible to soar.

Pending a change of wind there were fearsome arguments going on among the pilots and others concerned with aviation as to whether the upward wind caused by these cups is better for actual soaring than the less vertical wind which blows up the easier Southern slopes whenever it gets there. Some of them have a theory that with a gentle slope the upward current is less steep but is deeper and that therefore a soaring pilot is less likely to run through it and so lose his lift. Also there are arguments as to whether it will be possible to soar in a West wind blowing against Hill 60 itself, which has a convex face on that side without any cups to collect and concentrate the wind in an upward direction.

Late on Saturday evening Mr. Merriam arrived on a car with Mr. Newman and the monoplane which he had built himself in the Isle of Wight and almost at the same moment came a four-ton lorry, very sportingly lent by the Fairey Aviation Co. Ltd. transporting the C.W.S. (Courtney-Wright-Sayers) monoplane built by the Central Aircraft Co. Ltd.

Sunday's Preliminaries.

Sunday on Hill 60 was rather like Varnishing Day at the Academy, for almost everybody in The Movement was there besides the local nobility and gentry. Incidentally one may remark that never has one seen such a high percentage of really pretty women in the smartest of outdoor kit as on that day. Certainly the golfiest of golf clothes look better on the Downs than anything else even if one does arrive in a saloon, sedan, limousine or what-not. One remarked on the fact to a certain Willeby, designer and maker of a singularly interesting carburettor and at present a volunteer glider mechanic, who lives in the vicinity and he merely replied "Yes! We grow 'em here," as if they were cauliflowers, though to give him his due he said it rather with the pride of a gardener referring to his roses.



THE HEADQUARTERS OF THE GLIDING COMPETITION.—General View of the Camp where the Gliders are housed on the North-West spur of Itford Hill. The photograph is taken from about halfway up "Hill 60," as it has been nicknamed. The tents on the right are refreshment tents and "Daily Mail" offices. Those on the left contain the machines. Lewes is situated on the far ridge at the extreme right of the picture.

Of course the officials of the Royal Aero Club had to be at Hill 60 the day before the show began, but one noticed quite a lot of people who were not themselves concerned with the gliders and who were there because of the sporting element in the new game. Mr. Holt Thomas arrived on a big friendly chesnut mare who seemed to know the Downs by heart. Mr. and Mrs. Handley Page appeared out of a big covered car; he on crutches as the result of playing that dangerous game golf. Mr. C. R. Fairey, Chairman of the Society of British Aircraft Constructors and Col. Vincent Nicholl the famous seaplane pilot with their better halves were there and keenly interested in the C.W.S. monoplane, which had developed trouble with its aileron levers. Sir Bertram Jones, late of the Air Ministry and formerly of the War Office, who evidently retains all his old interest in aviation, brought several friends and Lady Jones dispensed hospitality to a large lunch party. Major and Mrs. Bernard Fowler, recently returned from Japan, came over from Herstmonceux. Colonel Darby of the Disposal Co. with his coadjutors Major Stewart and Major Grant were there, being naturally concerned for Mr. Stocken's machine. F/Lt. and Mrs. Longton came down in their familiar Perry car, he to observe events for his department of the R.A.F.

Altogether there was a very cheery gathering to watch the preliminary canters which everybody hoped to see. And everyone remained cheery despite the cold East wind and the fact that very little happened.

Early on Sunday morning Mr. Raynham tried a glide from the Westernmost spur on the South side of the ridge, hoping to benefit by an apparent tendency of the wind to swing to the South. He remained in the air a little over a minute, got across the shallow valley into a down-draught on the other side and alighted gracefully in what appeared to be the sewage farm of the local habitants. Mr. Gordon England also made a short glide which lasted just about as long. Both machines showed themselves to be in perfect balance.

The First Real Glide.

Then in the afternoon Mr. England decided to try one of the Northern spurs, which seemed not to be blanketed by the spurs further East of it. So we all proceeded to tramp for miles along the ridge to the edge of one of these vast cups, from which without delay Mr. England was catapulted. This was the first real glide most of us had seen, and one confesses that the sight is astonishing. To see a little monoplane lift in a few feet and apparently hang motionless in the air just beyond the brink of a precipice is a trifle alarming, for it seems that the machine must surely stall and spin into the face of the hill.

After a few seconds, which seemed like minutes the machine crept forward out of the fiercest part of the up-current and began to move gradually out over the plain. Then the pilot put her nose down to maintain flying speed and she glided ever so slowly down to an open field 300 feet or so below. The wind was blowing too much along the ridge to make a true soaring flight possible, but the performance was very good for a first attempt over a big drop, for the sides of these cups are practically cliffs.

That was not the last of the performances for that day, for M. Barbot brought out the de Woitine and tried to glide from the top of Hill 60 down to the tents in a cross wind. The machine got off well enough but as he began to move the crowd, which was not under control, surged round in front of him and in trying to lift over their heads he stalled hopelessly. He swung to the left, caught his left wing-tip in the ground and performed a complete cart-wheel, landed on the nose of the machine and turned upside down in the furze-bushes. When it was lifted off him it was found that the nose of the machine was crushed in and the right wing torn away at the root. So the only French representative was definitely out of action. And after that we all went home.

A Splendid Beginning.

The opening day of the Competition was full of excitement, even to the initiated. The two de Havilland monoplanes and the Fokker biplane had arrived during Sunday and were brought to the top of the Ridge early on Monday morning. Reconnaissances along the Ridge had shown that the further one went the better the North face was for gliding, as the spurs jut out to the East rather than the North and the backbone of the Ridge takes a turn to the South, leaving a deep and wide valley between itself and the Wilmington Ridge to the East.

Therefore several thousands of people started and tramped for miles in the direction of the famous Firle Beacon, which seems likely to become as famous in these days of gliding as it was when it signalled the approach of the Spanish Armada and lit up the country on other State occasions. Certainly in an East or North wind this high part of the Ridge does afford wonderful gliding ground.

Mr. Raynham had made a glide of nearly two minutes early in the morning, but not from this North spur. He had again tried the Southern slope.

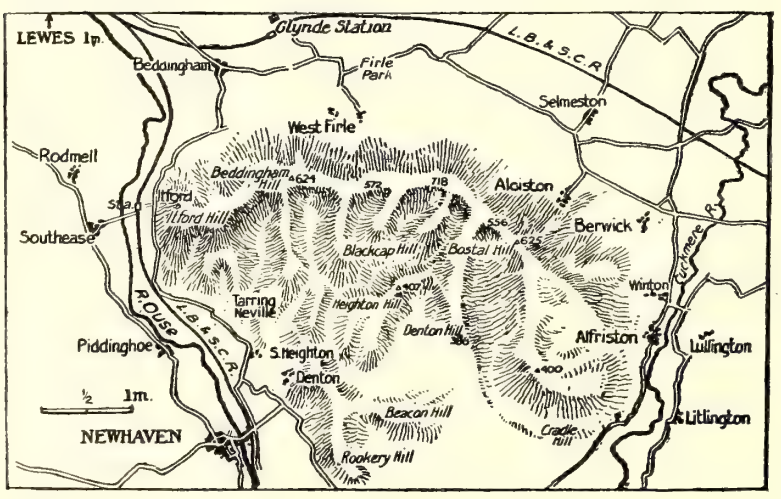
The first man off was Mr. Broad on the first D.H. monoplane. He started from about the third spur East of Hill 60. He made a very good show, gliding very steadily but not rising at all after being launched. But when he got well down towards the plain and felt the down-wave from the next spur he seemed about to spin and only seemed to get full control in time to land. He told one afterwards that this particular machine is a bit slow on her lateral controls. However he did not damage either himself or his machine. Then Mr. Herne, famous for his cross-Channel adventures with lightning and things, went off from the same spot and made a very fine glide of over four minutes. He covered very little distance but his rate of descent was amazingly slow. He kept the machine as steady as a rock all the time, and the controls scarcely seemed to move, in fact he seemed to feel the gusts before they affected the machine, which is just what a soaring pilot ought to do.

After him, from the same place, went Mr. Jeyes, an English student at Aachen University, on his Klemperer monoplane. It is a beautiful piece of work built with true German conscientiousness but one believes it to be all wrong aerodynamically. There is too much wind-tunnel and not enough air experience about its design. Still it is a very good glider.

Mr. Jeyes was well launched and lifted fifty feet at his first jump. Somehow it was much more spectacular than the departure of the D.Hs., chiefly one thinks because the machine was so much smaller. One of the best pilots in the R.A.F. said as Mr. Jeyes shot off over the cliff "Well! That is one of the bravest men I've ever seen!" and one of the best Vice-Marshals in the R.A.F., who was standing alongside, cordially agreed with him. Incidentally sundry Air-Commodores, Group-Captains and other experienced Service aviators all agreed that launching over a precipice that way is much more hair-raising than getting off with any sort of power-driven aeroplane. Still the glider pilots seem to like it, and *chacun à son goût*.

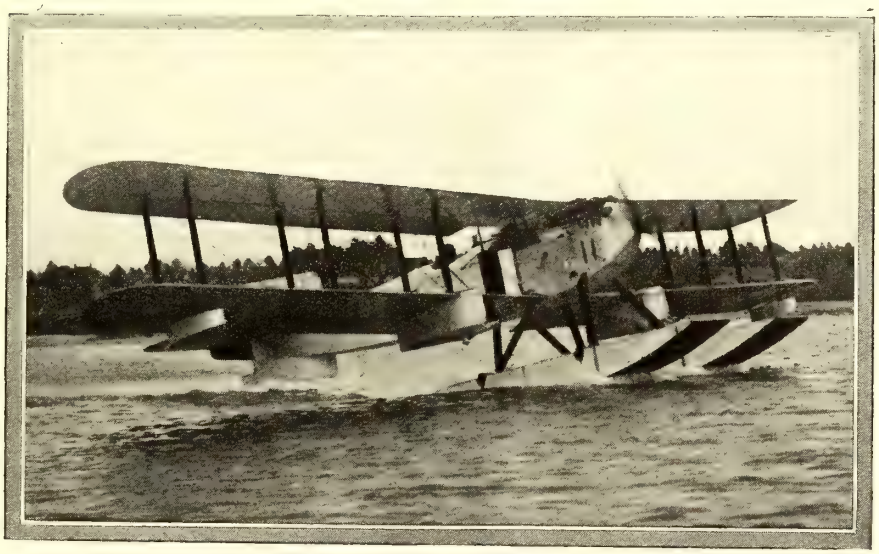
Once well out from the Cliff Mr. Jeyes started working hard at his controls, "Pump-handling like blazes," as one pilot put it. In fact several clever pilots seemed to think that he would have done better if he had left the machine alone to stabilise itself and had only worked it when he wanted to dive or climb. Nevertheless he put up a very good show and pulled off a quite successful landing at the foot of the cup just over the next spur.

After he had landed everybody was horrified to find that the Handasyde, England and Fokker machines were all trekking steadily East along the Ridge, apparently making for Dover. Still the Englishman, as usual embracing women, is an undefeatable idiot so the whole crowd started trekking after them, as keen as if they had been following a couple of golf champions. They went a good-looking four miles from Hill 60 before they reached Firle Beacon whence



THE ROYAL AERO CLUB'S OFFICIAL MAP.—Asham Farm is just in the valley to the right of the "d" of Itford. The early glides on Sunday were made from Beddingham Hill, marked 624. Mr. Raynham's big glide was done from Firle Beacon, marked 718.

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they proposed to commit themselves to the air. And this, mark you, was just about the time when any sensible people would have been thinking of lunch.

Fortunately for oneself and a scientific young friend in the R.A.F. who was studying aerodynamics in the best way we were given a lift by Mr. Raynham in or on his indestructible Mors, and Herself as adopted by the Fairey family in Col. Nicholl's Buick. Otherwise there would have been three more casualties on the Ridge. And when we "got to the end of the road," as they sing at the Winter Garden, we found Mr. Fokker all ready to start, but complaining that there was not enough wind for soaring, though the Easter was strong and keen enough to shave one—which may have accounted for the paucity of beavers observed on the Ridge by G.D. Somebody suggested that Mr. Fokker's delay was due rather to lack of cameras than to lack of wind, which, seeing that Mr. Fokker is certainly one of the World's best business men is probably a plain sensible commercial fact. And when the weary and foot-sore camera-men did arrive Mr. Fokker gave them a very good run for their money.

Mr. Fokker Shows How.

First of all he wanted a passenger, and naturally fixed on Mr. Paul Bewsher of the *Mail*, who seemed to regard flying in a Handley Page over Zeebrugge or Bruges as much less serious than this business. Wherein one cordially agrees with him.

To tell the truth, no glider is a very trust-inspiring proposition at any time. A glider depends for its success to the extent of about 50 per cent. on the quickness of its controls, and when one sees controls working with the celerity of a sparrow's wings and knows that they are operated with something like 24-gauge piano wire fixed to bits of tin it is enough to make one think seriously before trusting oneself to such an apparatus.

However, the brave Mr. Bewsher duly climbed into the machine and when a sufficient crowd had gathered various volunteers were enrolled for the bunjy-ropes, and Mr. Fokker was duly hurled into space. As he went over the cliff he made one short dive, then recovered himself and proceeded to head across the wind. In this wise he worked the whole way along from Firle Beacon right to the end of the ridge where it finally drops into Burling Gap.

About half-way he got a very nasty drop in one of the cups on the way. He recovered over the next ridge and somewhere about Beddingham got a terrific lift which pushed him up a couple of hundred feet over the ridge itself. There he made a left turn, evidently with the intention of coming back along the ridge, but in turning he went so far out that he glided through the thickness of the upcurrent and got into apparently horizontal air behind it.

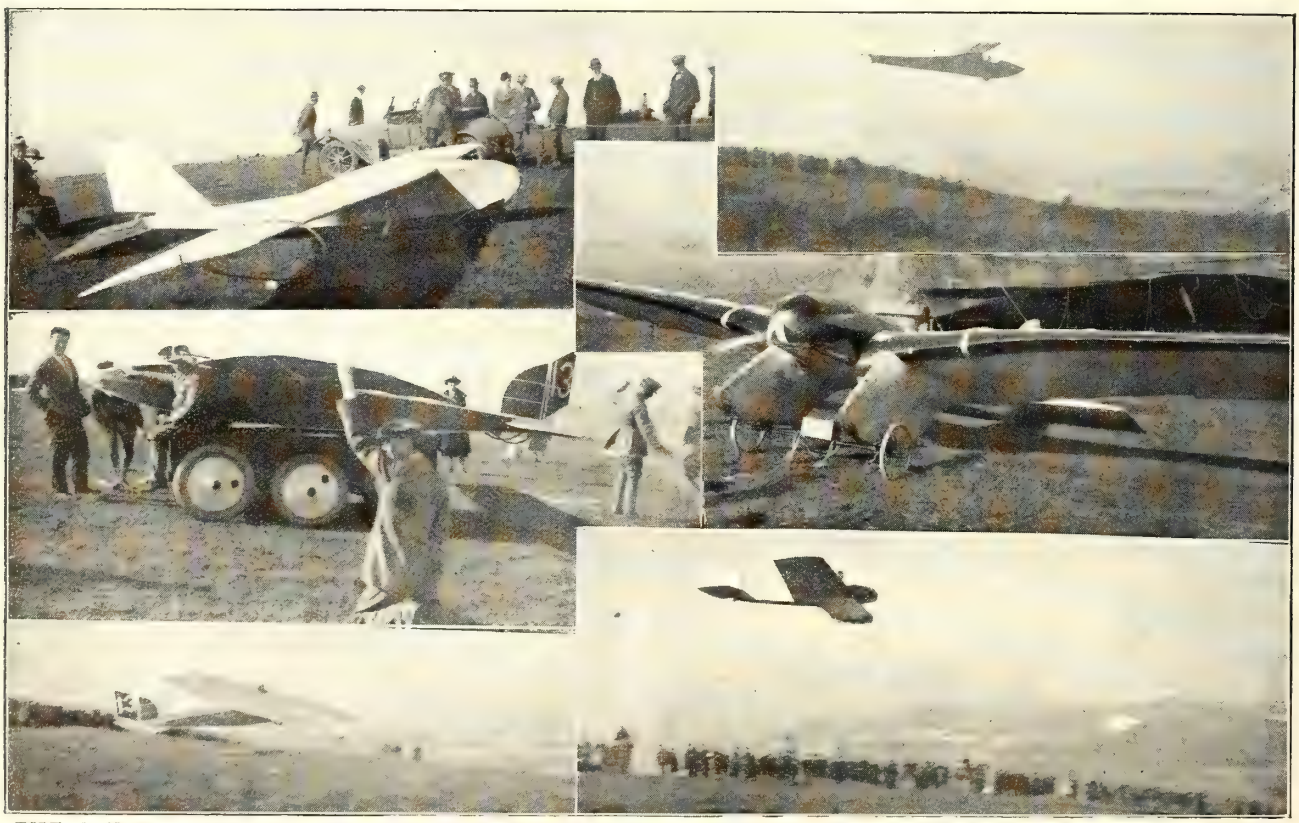
That meant diving back towards the face of the ridge to try and get into the upcurrent again, but evidently low down there was not enough upward component in the wind to raise him to his former level. Therefore he glided along very skilfully indeed but steadily losing height till he reached a point almost exactly below where he had started. Here he turned the machine right-handed into the wind, slid down the foot of one of the spurs, crept through a hole in a hedge by a wonderful piece of piloting and sat down in a newly ploughed field. Considering that it was his first flight under entirely strange conditions it was a wonderfully fine piece of work, and he deserves congratulations for it. His time was 7 mins. 3 secs.

Mr. Fokker's Unpopularity.

A good many people (though very few war pilots) who were present seemed to object very strongly to Mr. Fokker being allowed to fly in the Competition on the grounds that he had designed and built the most dangerous fighting machines the Germans ever had. Personally one entirely fails to grasp the logic of this objection. Mr. Fokker was a perfectly good Dutchman who had lived in Germany for some years before the War. During that period he offered a curious inherently stable monoplane to our Government, which quite rightly turned it down because it was a very crude piece of construction and at that time nobody knew enough to recognise its aerodynamic merits. Mr. Fokker obtained the necessary support in Germany, and when the War broke out blossomed forth as an aircraft manufacturer. He copied the Morane monoplane faithfully and made it a very nasty fighting machine. Then he developed new types of his own, with the assistance of German scientists, which were still nastier from our point of view. In fact he did just precisely what he was paid to do, and it seems rather unreasonable to blame him for doing it.

We on our side had another brilliant Dutchman, Fritz Koolhoven, who as an aeroplane designer is streets ahead of Mr. Fokker, though nothing like so clever as a business man. As a matter of fact, Mr. Koolhoven's first machines, the Little and Big "Ack-Ws," designed in 1914, were good old standbys till the very end of the war, but we entirely neglected a whole mass of new types of fighting machines designed by him which, if we had developed them one after another as they were produced, would have kept us consistently ahead of the Fokkers. The Germans had the sense

(*Continued on page* 314.)



THE OPENING DAY.—Top left, Mr. Raynham's machine. Top right, Mr. Herne starting on the de Havilland. Middle left, Mr. England's machine on the trolley to be towed up Hill 60. Middle right, Mr. Jeyes' Klemperer. Bottom left, Mr England starting. Bottom right, Mr. Jeyes starting.

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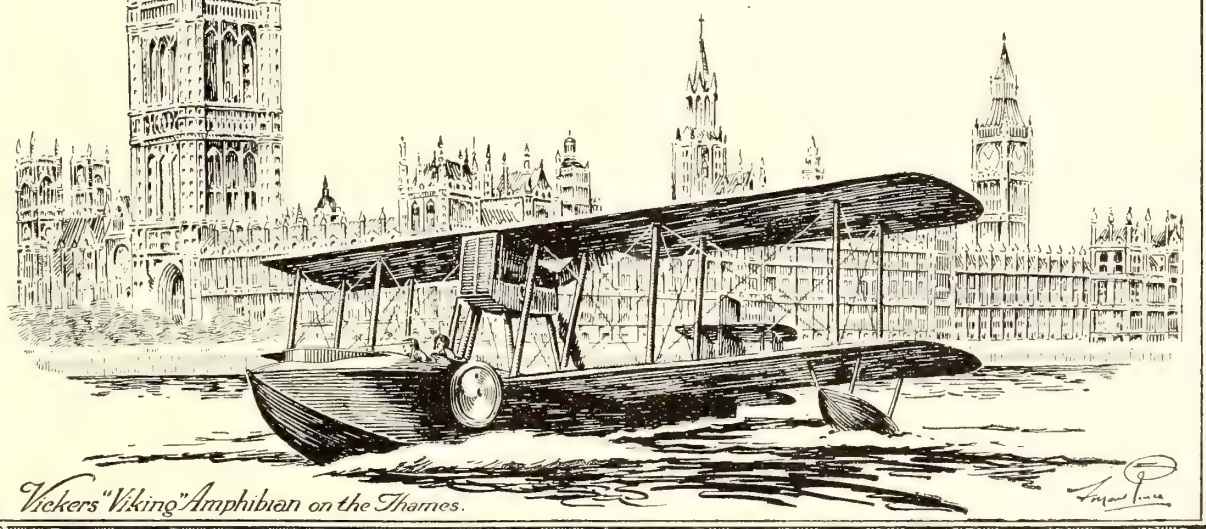
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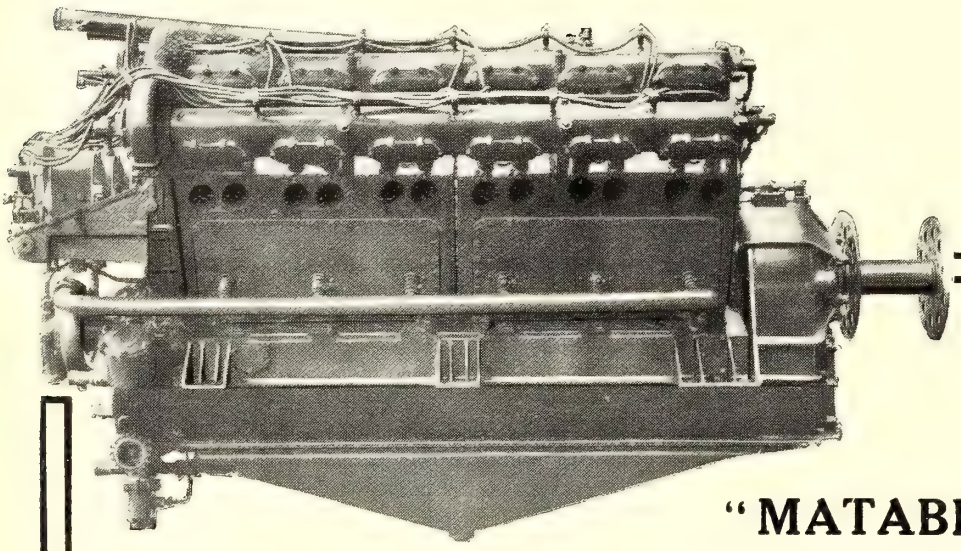
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THE WEEKLY COMMENTARY.

The relations between the scientist and the man of affairs have and always will give rise to a certain amount of controversy. In his opening address to the Royal Aeronautical Society the new chairman, Dr. Leonard Bairstow, has raised this subject afresh, and seeks to discover who of the two parties is in the wrong. The answer as usual seems to be "Both."

The Dobkevicius monoplane, built by a Latvian engineer, and illustrated and described in this issue, seems to be an excellent example of the small sporting type of single-seater, which seems to enjoy some popularity in every country but Britain. A particularly interesting point about this particular machine is that it appears to have been built purely as a personal adventure by the designer himself.

Dimensions and general arrangement drawings of some of the more interesting gliders entered tor the *Daily Mail* competition are given in this issue. The more amusing entries can scarcely be described until next week.

DR. BAIRSTOW ON THE WORK OF LANGLEY.

The first meeting of the Royal Aeronautical Society's 1922-23 session, held on Thursday, October 5th, at the Royal United Service Institution, was as usual the occasion of an address by the new chairman, Dr. L. Bairstow, C.B.E., F.R.S. The subject was the work of S. P. Langley, and the lecturer rather used the subject as one from which morals might profitably be drawn than as an historical record.

The Trials of a Pioneer.

Dr. Langley undertook his researches into the possibility of human flight and his experiments on the practical construction of aeroplanes in the face of the ridicule not merely of the world at large, but even of many of those scientific gentlemen who should—but rarely do—know better. He was supported in his work by his own faith in the possibility of flight and by his own scientific interest in the many problems which were involved. He died before his hopes had been entirely realised, but not before he had produced pretty conclusive evidence that his faith was justifiable. He is therefore a typical example of the type of pioneer who advances the cause of human progress at no profit to himself, who is inevitably an object of pity and amusement for his own contemporaries, but becomes a source of inspiration to his successors.

And the Limits of his Probable Success.

Probably this is the utmost measure of success to which any one whose work is directed by purely scientific considerations may reasonably aspire in the present state of general public ignorance and very naturally workers of this class who find—as all of them do find—that their work is hampered by the lack of any appreciation of the real aims and the real value of scientific experiment and research, feel impelled at times to point to the cases of their more illustrious predecessors, exhibit to the world at large how admittedly mistaken was its attitude towards the chosen example, and to hint more or less broadly that the same error is being made in regard to their own efforts.

Dr. Bairstow has chosen an excellent and an illuminative example. There is no doubt that Samuel Pierpoint Langley's work did more for the progress of aviation than is generally recognised. It is probably quite true that—as the lecturer stated—but for his work flying would not have been ready for the Great War. Whether that would—or would not have been—a misfortune is a question open to discussion.

A Characteristic Attitude.

Langley's own statement:—"It has taken me indeed but a few years to pass through the period when the observer hears that his alleged observation was a mistake: and the period when he is told that if it were true it would be useless: and the period when he is told that it is undoubtedly true but that it has always been known"—sums up very fairly the experiences of many such seekers after truth, and the attitude of the public of his time is in no wise different to the attitude of the public of to-day towards work of this type.

But it is not the general public alone who are to be reproached. Dr. Bairstow will doubtless affirm—and with some justice—that in regard to aeronautical research at least many of those who stand to gain most by its progress are amongst the ranks of the confirmed unbelievers.

The end of Langley's attempt to build a man-carrying aeroplane came not from any sense of defeat on his part, but arose from the fact that the funds for this work were granted by the American Board of Ordnance and Fortification. After the second crash of the full-sized machine "the Board deemed it advisable—largely in view of the adverse opinion expressed in Congress and elsewhere—to suspend operations."

Some Pertinent Questions.

Dr. Bairstow asks:—"Is not this sketch rather an indication that Boards—including Air Ministries—cannot utilise the enthusiasm of scientists under their control? What is wrong? Is it the Air Ministry or the scientist or both? Can an administrator who has no scientific knowledge direct the work of scientists? Has Britain ever allowed a fair trial to the executive control of scientific work by a man of science? How often have scientific men been placed on advisory bodies and their advice ignored?"

He also says, "I am not going to answer my own questions," and neither is the present writer. But they are questions of very great interest and importance, and ones which will require a great deal of answering.

And Some Impertinent Answers.

Some of the questions can fairly safely be answered offhand. Air Ministries and Boards cannot fully utilise the enthusiasm of scientists. Both the Air Ministries and the scientists are wrong in their own particular ways. The main trouble is largely psychological—if the scientist is enthusiastic he is not under control—even by an Air Ministry. And if he is under proper control he is not enthusiastic, and his work is apt to be humdrum.

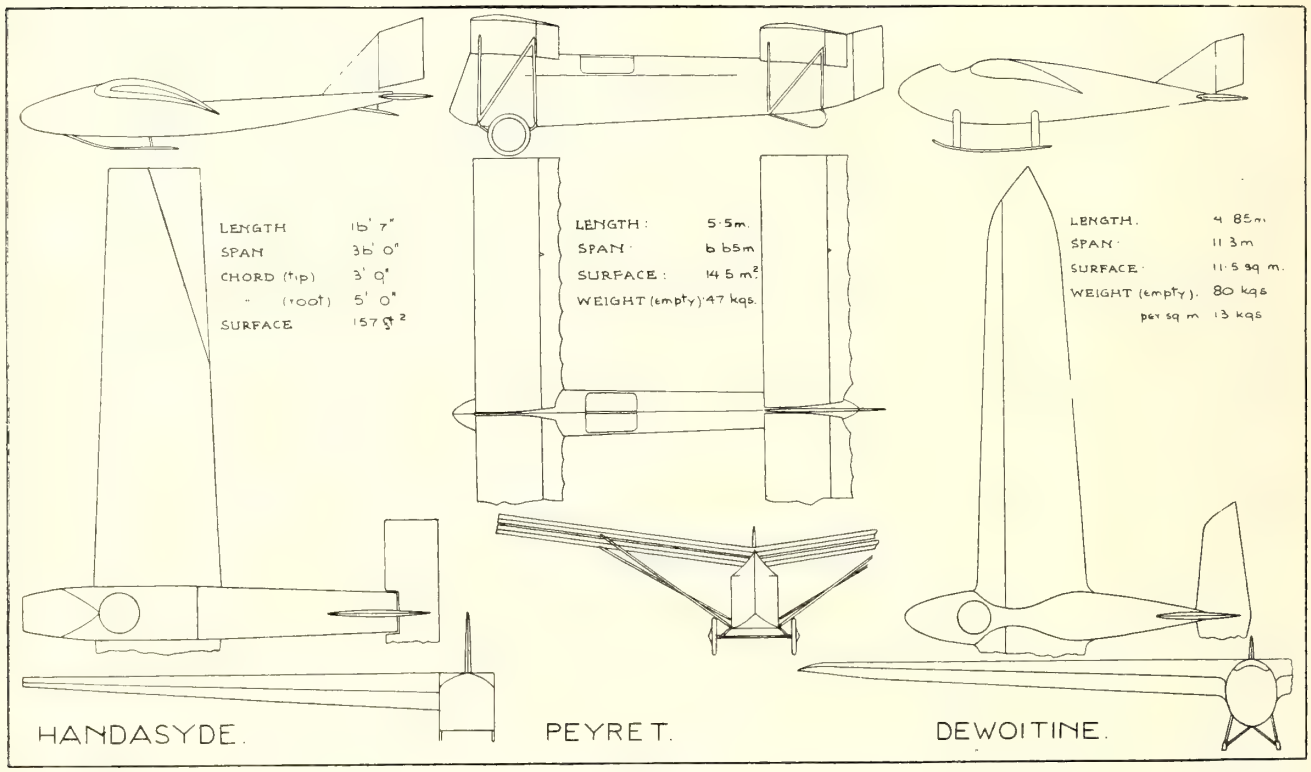
The fact of the matter is that all really epoch-making experiment and all really valuable research work is personal work—carried on by the determination of the worker himself to discover fresh truths. And nothing so stimulates his keenness as the ridicule and opposition of the orthodox minded.

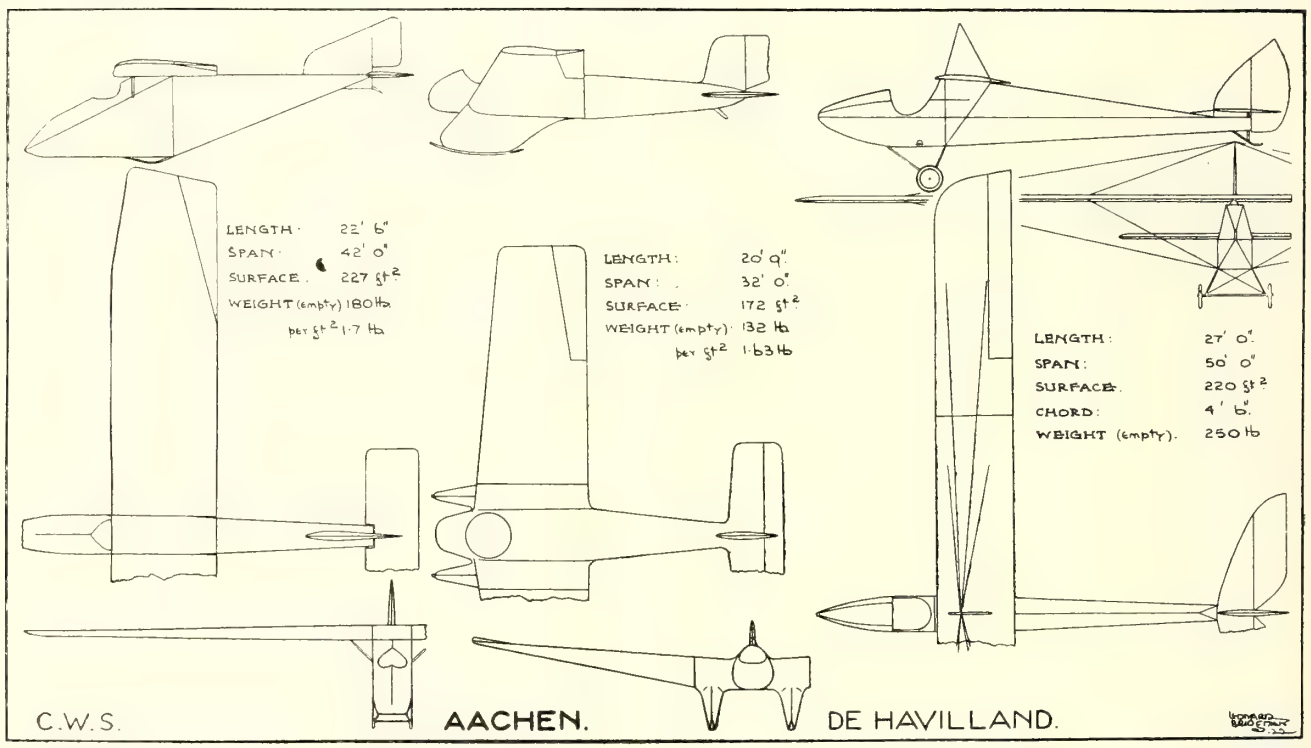
There are just as many keen and enthusiastic searchers after truth who are seeking it along false tracks as there are workers who are on the right path—and there is very little useful evidence as to the nature of a particular path until it has been found to lead somewhere.

No board, committee, or ministry can be so constituted as to be able to discriminate with reasonable certainty as to which paths are and which are not worthy of exploration. Can a scientist be trusted to do better in this matter? Very possibly not. Dr. Bairstow can scarcely need to be reminded that in the past scientists of undoubted eminence have been known to exhibit the utmost ferocity in opposing lines of thought or of research which have ultimately led to the most valuable results.

And one may argue that it is better to be opposed merely by the apathy of an uninstructed committee than by the enmity of a prejudiced scientist. This, however, is not necessarily true—scientists are apt to be very Celtic of temperament, and vicious opposition is often a greater incentive to real activity than any form of apathetic disinterest.—W. H. S.

SOME COMPETING GLIDERS.





The general arrangement drawings reproduced above give fairly accurate representations of certain of the entries for the *Daily Mail* gliding competition.

The Handasyde—to be flown by Mr. Raynham—is a very clean and straightforward job, and may be relied upon to fly well.

The Peyret—a French entry—is a curious-looing machine, and does not promise to be highly efficient. But it does glide to some extent, and may be better than one expects.

The De Woitine is probably the best of the French gliders—it has flights of up to 20 minutes to its credit and must be regarded as a very serious entry indeed.

The C.W.S. (Courtney Wright Sayers) is as can be seen a somewhat enlarged Hannover in general arrangement, but is entirely unlike the original in constrnction.

The "Aachen" monoplane, entered by Mr. Jeyes, is very closely a replica of the machine flown with such success by Dr. Klemperer at the 1921 Rhön meeting.

The De Havilland is noticeable for its very light structure, high aspect ratio, and low loading. It has been tested successfully and—apart from ill-luck—is certain to do well. The wheeled undercarriage shown in the sketch is to be replaced by skids for use on Itford Hill.

A NEW JAPANESE MACHINE.

The Japanese correspondent of THE AEROPLANE wrote on Sept. 1st:—

The Japan Aeroplane Works and Co., Gunma Prefecture, is a very perfect and large aeroplane firm in Japan, and many aeroplanes have been supplied to our Army Flying Corps for some years past. At present 70 machines of new Army standard type have been ordered by the authorities. These standard machines were designed for purpose of training of reconnaissance. The machine details are as follows:—

Type—Two-seater tractor biplane	Overall length.....8.29 m.
	Area 28 sq. m.
Span, upper wing.....10.8 m.	Motor Hall Scott 150 h.p.
Span, lower wing.....10.75 m.	Speed 80 m.p.h.

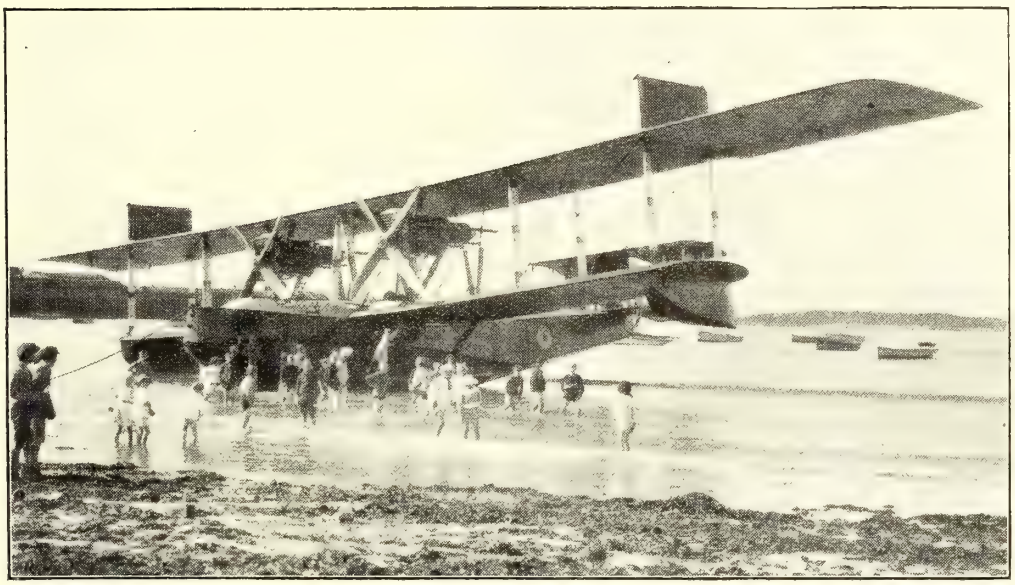
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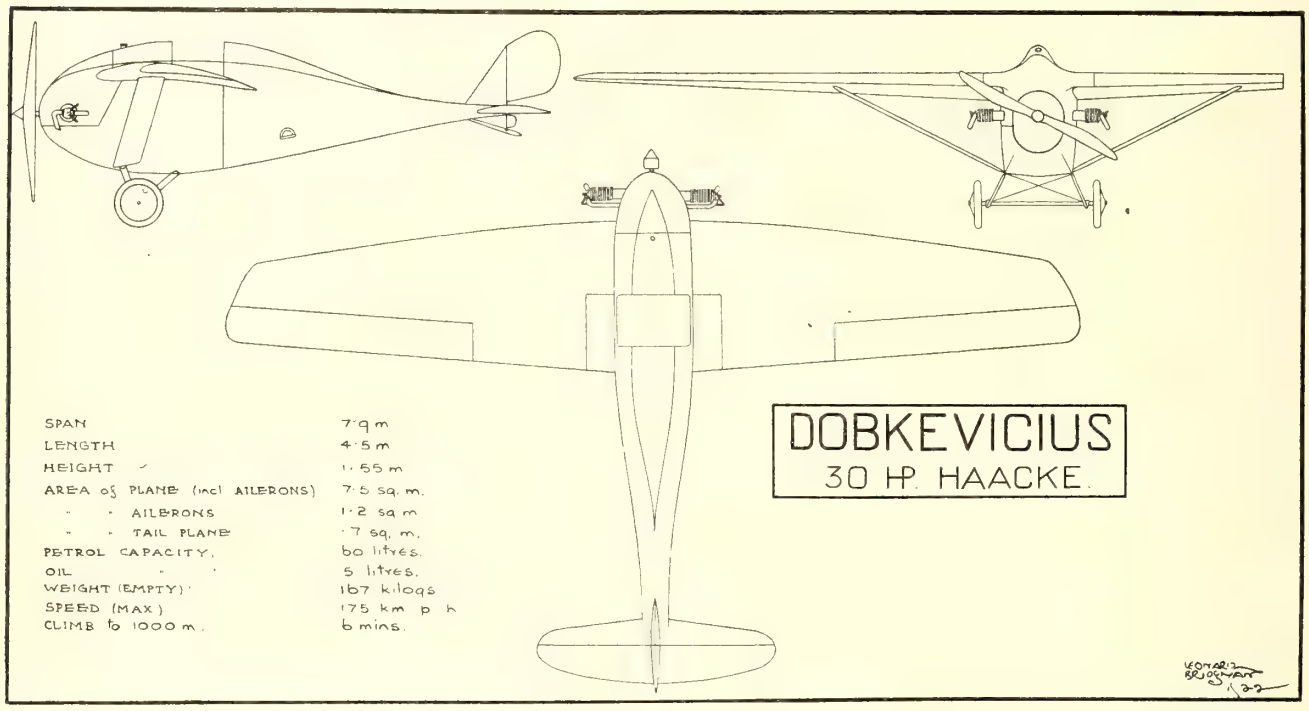
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WHITEHALL HOUSE, 29-30, CHARING CROSS, S.W.1.

Grams : Tested, Phone, London.

THE DOBKEVICIUS MONOPLANE.



The Dobkevicius monoplane has been designed, built, and flown by a young Latvian engineer and has shown itself to possess a really excellent performance. The machine is quite on the small side having a span of about 25 ft. and a length of approximately 13 ft., but it is very well proportioned and of good aerodynamical form.

The wings are built up of two box section ash spars having 1½ mm. 3-ply sides. The forward spar is parallel with the leading edge of the plane, and is slightly back-swept. The space between the spars is covered with 1 mm. 3-ply wood which makes internal bracing unnecessary. Each wing has 13 ribs and each third rib is strengthened. At a distance of 1.6 metres from the fuselage the spars of each wing are united by a strong oval section steel tube and these two tubes form the point of anchorage for the upper ends of two steel struts of wing section which at their lower points of attachment are anchored to a steel tube running between the two bottom longerons of the fuselage. This steel tube also takes the loads of the forward legs of the undercarriage vee and the undercarriage bracing. The wing section is thick and has a decided taper to the wing tips. Unbalanced ailerons equal to about half the span are hinged to the rear spars of the two wings and are operated in the usual manner.

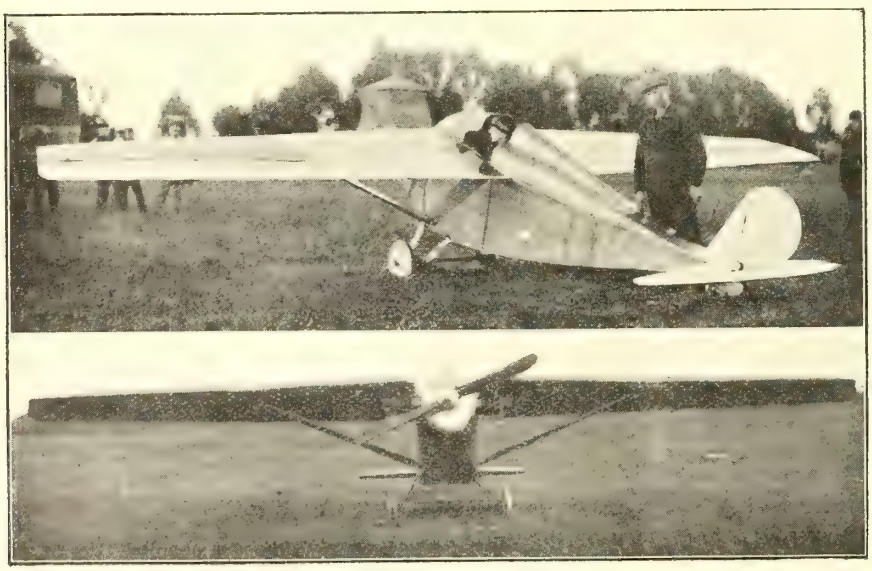
The fuselage is very deep, narrow, and short, and is of a good streamline shape. It is built up of four ash longerons and is covered in 3-ply wood. The forward portion carrying the engine is aluminium covered. The engine, a 30 h.p. two-cylinder horizontally-opposed Haacke, is mounted on two multi-ply wood frames and the lower fuselage longerons. The top of the fuselage is well-faired, and in section conforms to the shape of the pilot's heads and shoulders. The petrol tank is mounted on the top of the fuselage directly in front of the pilot, and all other heavy fittings are found fairly well concentrated about the centre of gravity.

The pilot's seat is somewhere about midway between the leading and trailing edges of the planes, and to assist in his downward view a large transparent panel is let into the wings. Forward view is fairly good owing to the shape of the petrol tank and fairing, and for the same reason a wind screen is found unnecessary. The controls are quite standard, and all control wires are internal.

The undercarriage is a normal vee type with single axle slung on rubber shock-absorber. The wheels shown in the photographs are very small, but these are changed for larger ones when used for bad aerodromes or cross-country work.

So far only a few tests have been carried out, but the machine proved itself to possess a good all-round performance. It has good stability and quite exceptional manœuvrability, and the fact that it loses its speed very slowly on landing with stopped engine proves that in any case its aerodynamical quality is good. The landing speed is very low.

Specification :—Span, 7.9 m.; length, 4.5 m.; height, 1.55 m.; area (including ailerons), 7.5 sq. m.; area of ailerons, 1.2 sq. m.; weight (empty), 167 kgs.; weight (loaded), 295 kg. app.; wing loading, 39 kg. per sq. m. (8 lbs. per sq. ft.); power loading, 8.7 kg. per h.p. (18 lbs. per h.p.); area of tail plane (including elevators), 7 sq. m.; petrol capacity, 60 litres; oil capacity, 5 litres; engine, 30 h.p. Haacke (35 h.p. at 1,350 r.p.m.); airscrew, Reschke, dia, 1.7 m.; pitch, 1.8 m.



Front and three-quarter rear views of the Dobkevicius monoplane (30 h.p. Haacke engine). The lines of the machine are noticeably clean, a fact which undoubtedly contributes to the remarkably high speed (108 m.p h.) attained with only 30 h.p.

From the upper of the two photographs it would appear that the pilot's view is not particularly good, but it is difficult to design a small machine of this type from which the pilot has a really good view, and the form of cowl used probably gives as good a view as is possible.

BE PREPARED

To neglect to take reasonable precautions for safety is more than foolhardy—it is criminal.

"One of the great factors in the next war will obviously be aircraft."—Marshal Foch, January 11th, 1921.

An Industrial Aeroplane Service is a Potential War Force.

At a Meeting of the Supreme Council held at the Quay d'Orsay, Paris, March, 1919, the following question and answer were propounded:

QUESTION: Can civil aeroplanes and airships be transformed easily into weapons of war?

ANSWER: Unanimously; Yes, very easily and very quickly.

"An aeroplane which can carry a certain number of passengers a certain distance at a certain speed is capable of carrying an equivalant weight in bombs at the same speed."—Brigadier-General P. R. C. Groves in "The Times."

The efficient modern machinery with which it is equipped, the experience of its highly-trained staff as designers and constructors of aircraft in the world war, together with its remoteness from probable centres of attack during hostilities, render the Westland Aircraft Works, Yeovil,

THE IDEAL FACTORY FOR THE PRODUCTION OF AIRCRAFT.

WESTLAND AIRCRAFT WORKS,

(BRANCH OF PETTERS LIMITED), YEOVIL

Manufacturers of Aircraft for Industrial and Military Purposes.

Winners of the FIRST PRIZE of £7,500 in the British Air Ministry Competitions for Large and Small Aeroplanes, held at Martlesham, 1920.

THE INSTITUTION OF AERONAUTICAL ENGINEERS.

The following have been elected members of the Council :—



S. T. G. Andrews, B.Sc.Eng.; W. Glass, A.M.I.A.E.; W. O. Manning, A.F.R.Ae.S.; Col. N. T. Belaiew, C.B., M.Inst.Met.; F. T. Hill, A.F.R.Ae.S., Wh.Sch.; H. B. Molesworth, M.I.C.E.; W. L. Cowley, A.R.C.S., D.I.C., Wh.Sch.; Major D. C. M. Hume, R.A.F., A.M.I.E.E., A.F.R.Ae.S.,; H. S. O'Brien, M.R.Ae.S.; H. P. Folland, M.B.E., F.R.Ae.S.; F. R. Simms, M.I.M.E., M.I.A.E., M.S.E.

The following programme of lectures, etc., has been provisionally arranged for the forthcoming session :—

October, 1922.—Paper by Mr. C. W. Tinson, A.F.R.Ae.S., on "Costructional Designs of Aeroplanes."

November, 1922.—Paper by Mr. G. H. Dowty, on "Oleo-Undercarriage Design."

December, 1922.—Paper by Mr. O. T. Gnosspelius, A.C.G.I., A.F.R.Ae.S., on "Experimental Data without Wind Channels."

January, 1923.—Paper by Major D. C. M. Hume, R.A.F., A.M.I.E.E., A.F.R.Ae.S.

January, 1923.—Paper by Mr. W. Cowley, A.R.C.S., D.I.C., Wh.Sch., on Wind Channel Experiments."

February, 1923.—Paper by Mr. W. O. Manning, A.F.R.Ae.S., on "Seaplane Design."

February, 1923.—Paper by Dr. A. P. Thurston, D.Sc., on "Aerofoils."

March, 1923.—General Meeting, followed by a Paper, by Lt.-Col. Moore-Brabazon, M.C.M.P., on "Aerial Photography."

March, 1923.—Visit to the National Physical Laboratory, Teddington.

April, 1923.—Paper by Mr. F. T. Hill, Wh.Sc., A.F.R.Ae.S., on "Some Controversial Points in Aircraft Detail Design."

April, 1923.—Visit to the Works of the Standard Insulator Co., Ltd., Kilburn, London, N.W., by courtesy of Mr. F. R. Simms, M.I.Mech.E., M.I.A.E., M.S.E.

May, 1923.—Paper by Major Wright, A.F.C., R.A.F., on "Experimenal Flying with over 200 different types of Planes."

May, 1923.—Visit to the establishment of the Instone Air Line, Croydon.

THE AIRCRAFT DISPOSALS CO. IN REGENT'S PARK.

Col. M. O. Darby, joint managing director of the Aircraft Disposal Company, has replied to the letter that appeared in the *Morning Post* on September 7th, asking why the Company were still in occupation of a certain area of Regent's Park.

"It is a question of expense to the taxpayer," he said to a representative of the *Morning Post*. "It would cost from £50,000 to £60,000 to move at the present moment, and a large part of the cost would have to be borne by the Government."

According to the *Post*, Col. Darby added that the matter had been constantly reviewed by the Treasury. The Company had been warned by the Ministry of Munitions to concentrate on the removal of stock from the Regent's Park depot before any other of their depots, and this they were doing. Already they had evacuated about a third of the area they originally occupied.

There was no question of the renewal of the lease. The Company was due out now, and only remained because of the great expense of immediate removal. If they continued to shift the material gradually, as sold, they could be out in twelve months' time at practically no cost to the taxpayer. An immediate removal could not be done under three months, and would mean an endless procession of lorries from the park. The value of the present stock, comprising engines, engine spares, and electrical material, all carefully stored and registered, was about £800,000.

The Treasury, Col. Darby continued, were satisfied that the Company were moving the material as quickly as possible. The Company were only agents for the Government, working on a fixed basis of profit. He thought it was only fair for the public to realise that a great deal of the Company's work had been of value to the progress of British aviation and its advertisement throughout the world.

Col. Darby informed a representative of THE AEROPLANE that it had been calculated that it would take 55,000 lorry loads to clear the stock at the Regent's Park depot.

AN ITALIAN MISSION IN ECUADOR.

The Italian pilot Signor Cattaneo has arrived at Guayaquil with all the materials necessary for the installation of a large works for the repair of aeronautical material. He precedes the Italian Mission which is about to leave for Ecuador in order to organise and direct an aviation school. Signor Elia Luit will be in charge of the school; and the aircraft will consist of 15 Gabardini and 4 S.V.A. land machines and 2 Macchi 18 and 2 Savoia seaplanes.

THE C.I.S. COURSES IN AERONAUTICAL ENGINEERING.

The International Correspondence Schools—the pioneers of technical instruction by correspondence—have long given some considerable attention to aeronautical subjects. The development of civil aviation during the past year or two—however disappointing it may have been in some respects—has at least been sufficient to give a fairly close idea of what is likely to be needed in the way of personnel and of the general type of training which is required.

The I.C.S. have evidently given this particular question very careful attention and have prepared a set of very well laid out instruction courses adapted not merely to the needs of the moment, but to the probable requirements of the future.

The standard courses are : (1) Complete course—for those who aspire to be managers or superintendents of aerodromes or the equipment and operation of air services; (2) aeroplane designers' course; (3) pilot's course for those who wish to qualify for Air Ministry pilots' licences A or B; (A) complete fitter's and rigger's course, covering aeroplane and engine work; (5) fitters' and riggers' course not covering engine work; (6) engine fitters' course; and (7) (8) (9) (10) (11) ground engineers' courses for categories A, B, C, D, and E.

The courses have all been arranged with a special view to the requirements made by the Air Ministry in regard to licences of one kind or another, and appear to be very complete and well arranged. Those who require instruction of any of the types mentioned above can therefore be confidently recommended to communicate with the International Correspondence Schools Limited, International Buildings, Kingsway, W.C.2, and obtain complete particulars from them.

A MATTER OF EXCHANGE.

As already mentioned in this paper it is impossible, in the existing state of the exchange for German aeronautical enthusiasts to subscribe to British aeronautical papers. At the same time, owing to he considerable variation of the exchange, British subscribers to German papers are liable at any moment to be informed that the price in marks has been multiplied and that therefore their subscriptions have lapsed.

It is undoubtedly mutually to the advantage of British and German students of aeronautics that each should study the technical papers of the other's country. The best way of doing this seems to be for subscribers to British technical journals to exchange their copies when they have read them for copies of the German papers. Therefore one would be glad to hear from any readers of THE AEROPLANE who would like to arrange an exchange with German aeronautical students. Several such exchanges have already been arranged.

AN ACQUISITION.

The many people interested in aircraft design who thought highly of the Austin "Whippet" and the Austin "Kestrel" as examples of the advance of the use of steel in aircraft design will be glad to hear that Mr. J. Kenworthy, who was responsible for these machines, has now joined the design staff of the Westland Aircraft Works at Yeovil under Mr. Robert Bruce.

Both the Westland Company and Mr. Kenworthy are to be congratulated on this new arrangement. Nobody is more appreciative of good design work than is Mr. Bruce and nobody is more capable of turning out first-class work than are the Westland Works. Therefore Mr. Kenworthy will certainly have every opportunity of displaying his ability as a designer. On the other hand, Mr. Kenworthy's experience of all kinds of aircraft design at the Royal Aircraft Factory until early in 1918 and later as chief aeronautical engineer to the Austin Company should certainly be of distinct use to the Westland Company. One hopes to see some very useful work done for the progress of aircraft design by the combination.

PETROL PRICES.

The Anglo-American Oil Company notify that in future the cost of their petrol will be as follows :—

England and Wales : Pratt's "Aviation," 2s. 4d. per gall. Pratt's "No. 1 Perfection," 2s. per gall. Pratt's "No. 3," 1s. 10d. per gall.

Scotland : One penny more than England and Wales. Ireland : 3½d. more than E. and W. Isle of Man : 2½d. more than E. and W. Channel Islands (excluding Guernsey) : 4½d. more than E. and W. Guernsey : 5½d. more than E. and W.

F-ADAY F-A
F-ADC A
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F- A
F- A
F- A
F- A
F- A
F- A
F-FA
F-FHI
F-UHM
F-YHM
F-ADAI
F-ADAU
F-ADBM
F-ADBP

C.M.A. Air Lines is the British title of the Compagnie des Messageries Aériennes, whose head office is at 2, Rue Galilee, Paris. The Company was originally founded early in 1919, by M. Louis Breguet, for the transport of goods from Paris to Lille, the ground communications having been so much disturbed by the European War. This line, which was the first commercial aviation service in the world, was soon extended to Brussels and the line from Paris to Brussels has been maintained by the Company ever since.

In September, 1919, a service between London and Paris was inaugurated in conjunction with Handley Page Transport, Ltd. This was originally operated three times a week each way, but later, when the two Companies separated, a daily service was commenced, which has now been extended to a thrice daily service.

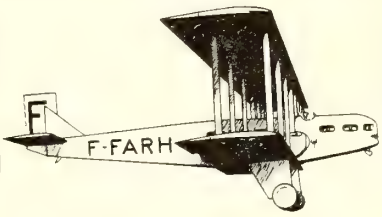
By an arrangement with the Compagnie Générale Transatlantique a service is run to connect with the arrival and departure of this Company's sailings between Le Havre and New York. This is the first occasion on which a large shipping company has recognised the necessity of using commercial aviation in its transport policy.

The Company's service has now reduced the time of transit between London and Paris to two and a-half hours; between London and Le Touquet to one and a-quarter hours; between Paris and Le Touquet to one and a-quarter hours; between Paris and Brussels to two hours and between Brussels and Amsterdam to two hours. A line has been inaugurated to run direct from London to Marseilles, calling at Paris and Lyons and connecting with the Steam-ship Lines to India and the East. This brings Marseilles within eight hours' reach of London and Lyons within six and a-half hours.

The C.M.A. Passenger Service is maintained by twin tractor Farman Goliath Biplanes, fitted with two 500-h.p. Renault Engines and with a seating capacity for 12 passengers, pilot and mechanic. This machine has a wing-span of 92 ft., a length of 49 ft. 6 in. and a height of 16 ft. Its cruising speed is 93 m.p.h. The freight, mail and newspaper services utilise the smaller type of single-engined Spad and Breguet.

The Compagnie des Messageries Aériennes is an association of aircraft constructors for the study and application of Aerial Transport, and among its Board of Directors appear the well-known names of Messrs. Blériot, Breguet, Candron, Farman, Morane, Luquet de St Germain and Renault.—*Extract from R.A.F. Year Book.*

F-ADAE
F-ADAF
F-ADAG
F-ADBI
F-ACMA
F-ACMB
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F-ACME
F-ACMF
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F-CMI
F-AB
F-AF
F-CMAK
F-CMAJ



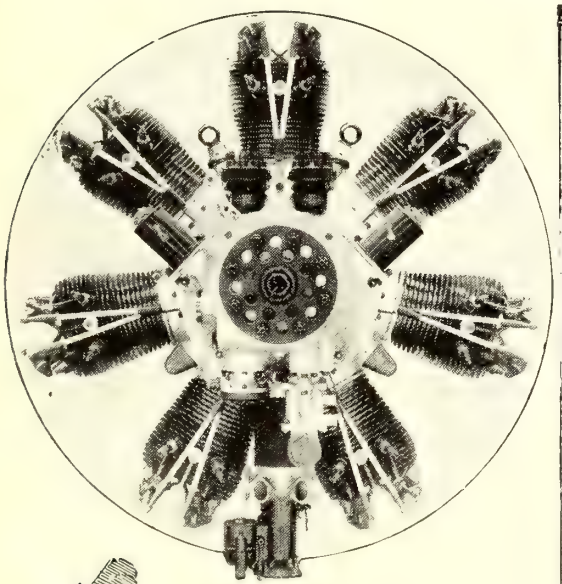
C.M.A. AIR LINES

32, Haymarket, London, S.W.1.

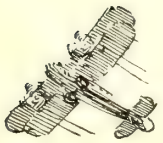
Regular passenger and freight services.

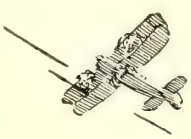
LONDON	PARIS
LE TOUQUET	BRUSSELS
ROTTERDAM	AMSTERDAM
LYONS	GENEVA
MARSEILLES	LE HAVRE
STRASBOURG	PRAGUE
WARSAW	VIENNA
BUDAPEST	BELGRADE
BUKAREST	CONSTANTINOPLE
TOULOUSE	BARCELONA
ALICANTE	MALAGA
RABAT	CASABLANCA

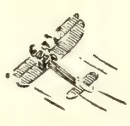
Telephone—Gerrard 3485-6.
Telegrams—Flylonpar, Piccy, London.



The "LYNX."







Other Models:
45 h.p. 2 cyl. Aircooled.
300 h.p. 14 cyl. Radial

ARMSTRONG SIDDELEY

Aircraft Engines

The "LYNX" gives 175 h.p. at 1,700 revolutions. Its chief characteristics are low petrol and oil consumption and perfect cooling.

Registered Trade Mark.

ARMSTRONG SIDDELEY MOTORS LIMITED
(Allied with Sir W. G. Armstrong Whitworth & Co., Limited).
HEAD OFFICE & WORKS: : COVENTRY.
Telephone: Coventry 954. Telegrams: "Sidarm, Coventry."
LONDON: : 10, OLD BOND ST., W.1.
Telephone: Gerrard 6439 Tele: "Armsidco, Piccy, London."



MR. FOKKER'S FIRST FLIGHT.—He is here seen with Mr. Paul Bewsher starting from the top of the cup to the East of Firle Beacon. They travelled to the far end of the ridge seen in the picture—another three miles farther on at least—and landed just below their starting point.

(*Continued from page* 304.)

to use their clever Dutchman and we had not, and so far as one can see that is all there is to the argument.

Why anybody should bear Mr. Fokker personally any malice one simply cannot understand. There was no moral right or wrong on either side in starting the war, so how can anyone blame a neutral for choosing the losing side. There is no crime in backing the wrong horse. People may dislike Mr. Fokker as an individual, but that is quite another matter when it comes to questioning his right to compete for a British prize. He was made a German citizen during the war for necessary political reasons, just as Mr. Koolhoven was made a British citizen, and though one might have liked him better if he had retained his German citizenship out of respect for the country which treated him so well one cannot get over the fact that he is again a perfectly good Dutch citizen and is legally entitled as such to enter for any International competition. Apart from which it is probable that within the next few months pure German pilots will again be entitled to compete in International events.

Anyhow, whatever anybody's views may be, there is no getting away from the fact that Mr. Fokker put up a very fine initial performance.

Mr. Raynham's Fine Performance.

As soon as he had finished Mr. Raynham went off for his first really big flight over the cliff, starting actually from Firle Beacon itself, marked 718 on the map. His performance was really the sensational event of the day quite apart from the fact that he is undoubtedly the most popular pilot in British aviation to-day. If everybody concerned, including all the competitors, were asked to vote for the man other than themselves whom they would prefer to see win the *Daily Mail's* £1,000 the vote would be practically unanimous in favour of Fred Raynham. His popularity is very largely due to his own quiet unassuming personality and his known skill and pluck as a pilot, but his personal likeableness is augmented by the fact that he has never yet had any real good luck in any big event although he has been a most consistent trier on every occasion.

His Handasyde monoplane is very much faster than the Fokker and therefore actually a better soaring machine, in that it is possible with it to dive into an upcurrent and so develop very much more power for a lift than is possible with a slow machine. One hopes that before the end of the week, if only the wind holds good, he will put up a really fine performance.

On this occasion the whole soaring game was new to him and his performance is therefore all the more wonderful. As he shot forward from his catapult he rose a good 30 feet and then seemed to stall. Promptly he put his nose down and for a moment it looked as if he were going to hit the edge of the cliff as he went out over it, but in fact he cleared it by 15 or 20 feet and shot straight into the upcurrent, where he got another lift which raised him well above his starting point. Thence he held his height well along the ridge, got a slight drop over the Alciston spur, which juts out from the big hill marked 625 on the map, but getting safely across it he received another terrific lift from the wind which was being pocketed between the spur and the main ridge. Thence he worked down to the other ridge opposite the place marked Winton on the map and remained there for quite a long time, steadily gaining height. One believes that if he had held his machine up there for a while and let himself drift back over the main Ridge he would have got a still bigger lift, but one could scarcely expect such a feat in what was actually only a first trial spin.

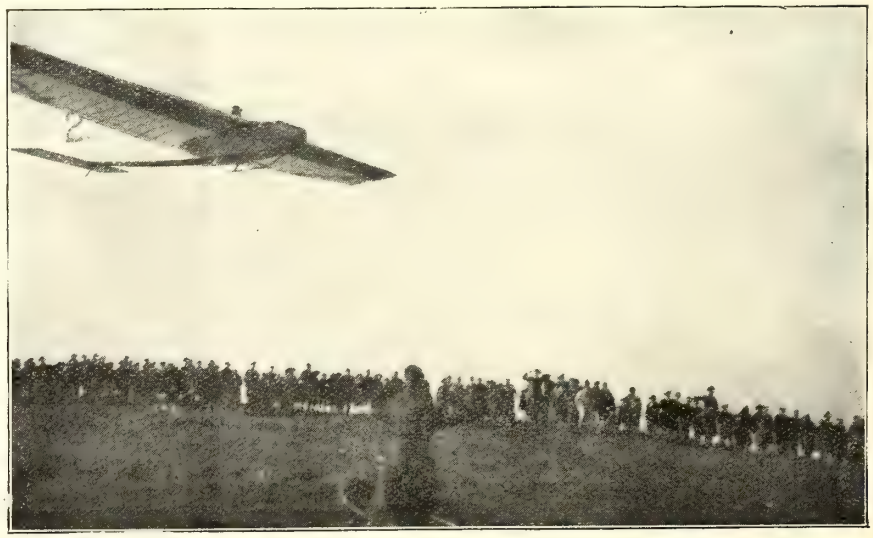
After gaining plenty of height there he then turned and started to edge back along the ridge as Mr. Fokker had done. He held his height very much better than the Fokker machine, but as he came over the Alciston spur he was dropped well below the top of the ridge, and from there all he could do was to hold up as long as he could on a steady down-wind glide. Finally he landed well round the edge of Firle Beacon in a field close to a small road (not shown on the map), which runs from West Firle to Alciston. His time was 11 mins. 23 secs., and huge was the delight of the crowd when they found that he had beaten Mr. Fokker.

After that Mr. Gordon England, who had been watching the performances of the other two, was launched from the same spot on Firle Beacon as that used by Mr. Raynham. Unfortunately just when he was starting the wind dropped to a mere 10 or 15 miles an hour, which was not enough to give him the lift that he wanted. His machine is one believes considerably faster than the Handasyde and would possibly therefore do better in a very strong wind, but as the wind had weakened so badly all he could do was a very long glide without gaining height at any time, so that he landed well round the corner of the next spur.

Mr. Fokker's Big Show.

As the sun was then getting low and it seemed that the wind was going to drop most of the people on Firle Beacon started for home seeing that it is a good three-mile walk to Hill 60. Those who remained, however, saw the really big flight of the day. As the sun sank lower still the baked top of the ridge began to give off its stored-up heat and seemed to draw the cold air up from the plain, which was then well in the shadow, and caused most terrific up-draughts. Mr. Fokker, perceiving this, started out again, and having found a really good "chimney" over one of the cups in the hill proceeded to sit on it for 34 minutes.

Unfortunately personally one did not see the performance, having been among the homeward walkers, but one is told that it was quite a wonderful sight. He was no great dis-



MR. FRED RAYNHAM'S START.—The Handaseyde monoplane is here seen just after leaving the ground and before doing its dive over the cliff. The crowd in the background represent about one-tenth of the whole crowd on Firle Beacon, a full 3½ miles from the original Itford Hill.

DE HAVILLAND SUPREMACY

IN SPORT The Air Race round Britain for the KING'S CUP was won by a D.H.4A. Twenty-one aeroplanes started, of which 7 were DE HAVILLANDS. Of the FIRST 6 MACHINES HOME 5 were DE HAVILLANDS.

IN WAR During the period August, 1914, to November, 1918, over 30% of the total number of machines built for the British and U.S.A. forces were DE HAVILLANDS.

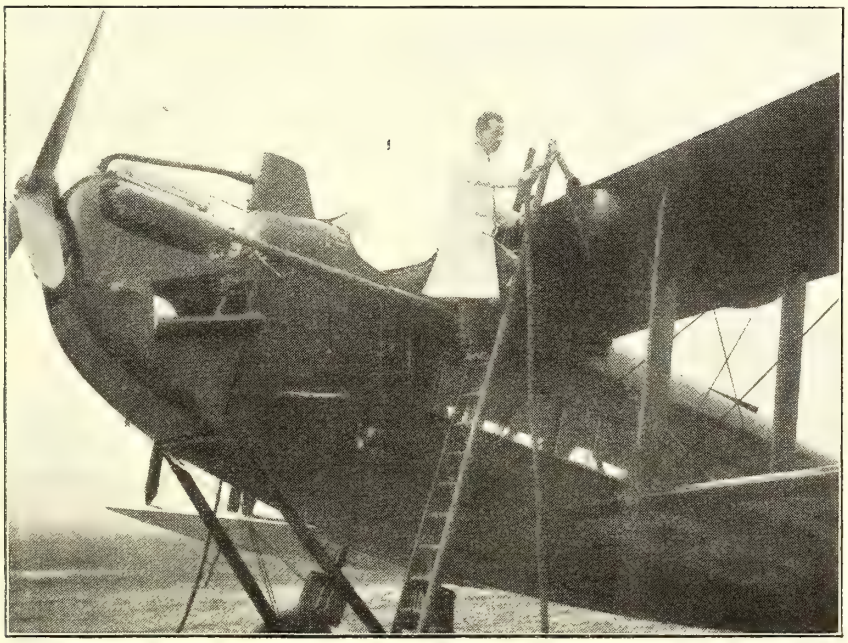
D.H. military type aircraft are now being used by the following Foreign Governments :—
U.S.A., Spain, Holland, Belgium, Japan, Roumania, Greece, Russia, Poland, Norway, Denmark, Switzerland, etc.

IN COMMERCE DE HAVILLAND commercial aeroplanes are to-day in regular use on the following Air Lines :—

London-Paris, London-Brussels-Cologne, London-Amsterdam, Seville - Larache, Buenos Ayres - Monte Video, Cairo - Bagdad, New York-San Francisco, New York-Washington, etc., and also on THE DE HAVILLAND AEROPLANE HIRE SERVICE.

THE DE HAVILLAND AIRCRAFT CO., LTD.,

Telephone : KINGSBURY 160, 161. **Stag Lane Aerodrome, Edgware, Middlesex.** Telegrams : "HAVILLAND, EDGWARE."



Always Dependable

The dependability of Pratt's Aviation is evidenced by its consistent use by leading Air Travel Companies. Its purity and uniform quality make it the preferred spirit for long journeys.

This is a recent photograph of one of the DAIMLER AIR SERVICE 'planes filling-up with Pratt's Aviation at Waddon Aerodrome.

PRATT'S AVIATION SPIRIT

THREE OF ANGLO'S GOLDEN PUMPS
(approved by the Standards Dept., Board of Trade) are now installed at Waddon Aerodrome for the quick supply of Pratt's Aviation Spirit, filtered and without waste.

Anglo-American Oil Co., Ltd., 36, Queen Anne's Gate, London, S.W.1.

tance above the ground and apparently carried on a conversation with the people below.

Topographical Tosh.

Seeing that Mr. Fokker's best previous performance was some 13 minutes over the Wasserkuppe it would appear that all the talk we have heard about the peculiar suitability of the Rhön district for soaring is just about the tosh one suspected it to be. People talked about ranges of hills 30 miles in length approaching one another at something less than a right angle and squeezing in all the air accumulated over thousands of square miles of country. The French made a terrific song after the failure of their much-advertised Combegrasse Meeting about the peculiar topographical suitability of the Rhön district as compared with anything in France. It may be that the Puy de Combegrasse was not as suitable as the Wasserkuppe, but that was evidently due to bad choice of ground.

One does not believe that soaring depends at all on vast masses of hills or on length of ridges or anything of that sort. What one does believe is that given a good steep cup-shaped hillside a matter of a couple of hundred feet high with a good strong wind blowing straight into the cup one can soar there as long as one chooses and as long as the wind holds. There is probably quite a great deal to be discovered yet about the effect of the angle of slope at different wind speeds, that is to say, whether a gentle slope does in fact produce a thicker layer of upward trending wind over it and whether a very violent wind blowing up such a slope produces better soaring, say, than a very violent wind blowing against the face of a cliff.

These are subjects about which the Meteorological Society of the past and the Meteorological Section of the Air Ministry of the present have been and are delightfully ignorant. But we shall probably find out a lot more on these points during the next few days. Meantime, we have proved definitely that the locality at present being used for the competition is as good as anything in Germany and that our own experimental gliders with pilots who are complete novices can be better than any but the most expert of their foreign competitors.

A Popular Winner.

It is particularly amusing, after all the controversy that has been going on, to find that Mr. Raynham in his very first experiment in real soaring should have beaten by minutes the record performance of the whole of the French Meeting on the Puy de Combegrasse. This little effort wins for Mr. Raynham the £50 Prize put up by Lieut.-Col. Alec Ogilvie for the British machine which put up the best performance exceeding 5 minutes on the opening day of the meeting, and certainly there could have been no more popular winner.

Altogether the whole of the opening day was a great success, and everybody agreed that nothing more interesting has happened in aviation since the earliest attempts at power-driven flying. All the real pioneers of aviation who were there such as Lieut.-Col. McClean and Mr. Keith (partner of the late Mr. José Weiss), Mr. A. V. Roe and Mr. England, agreed that for the first time in thirteen or fourteen years they had recaptured the rapture of the early days of flying. One can only hope that the meeting will go through with complete and without untoward incidents.—C. G. G.

The First Day's Performances.

Below are the performances of Monday in order of increasing duration :—

F. Raynham ..	Handasyde ..	..	1m. 58s.
H. S. Broad ..	De Havilland ..	..	2m. 18s
E. D. C. Herne ..	De Havilland ..	..	2m. 38s.
J. Jeyes	Klemperer	..	3m. 1s.
Gordon-England ..	Gordon-England ..	..	4m. 32s.
A. G. H. Fokker ..	Fokker	..	7m. 3s.
F. Raynham ..	Handasyde	..	11m. 23s.
A. G. H. Fokker ..	Fokker	..	37m. 6s.

(To be continued.)

DURATION.

A Goliath aeroplane piloted by MM. Bossoutrot and Drouhin landed at Le Bourgêt in the afternoon of October 15th, owing to lack of petrol, after having remained in the air for 34 hours and 14 minutes and 7.1-5 seconds.

This performance was an attempt to beat the duration record of 35 hours odd, recently set up by the U.S. Army Air Service pilots, Lts. Macready and Kelly, but it failed to reach their time.

ALTITUDE.

An attempt was made on October 14th on the world's height record of 22,210 ft. alleged to be held by Lt. Schroeder of the U.S. Army. Sjt.-Maj. Montonnier of the French Air service is said to have attained a height of 21,120 ft. when engine trouble developed and he was forced to land. His performance, however, constitutes an altitude record for France. The actual record, if not yet homologated by the F.A.I., is something in the region of 40,000 feet by Lieut. Macready, U.S.A., who also holds the duration record.

An apology to the Reporters of the Times.

FRENCH TIMEKEEPING.

Those who have on occasion felt annoyed with this paper for referring slightingly to French timekeeping will probably be interested in an article which appears in *Les Ailes* on this subject. After having remarked the fact that while Sadi Lecointe remains *officiellement* the fastest man in the world while *officicusement* the title belongs to James, the article continues : " One can only deplore these subtleties; one can only deplore also the superannuated methods of timekeeping employed to-day by the Aero Club de France to register official speed records of which the indications are so little precise that the said records no longer signify anything. The chronometer is insufficient to control records, especially in the neighbourhood of 350 kilometres to the hour: the pilot is at the mercy of the reflexes of the timekeeper. It is necessary to find something else, something that modern science should be able to furnish."

A FINE PERFORMANCE IN PERU.

The *Times* correspondent at Lima, Peru, telegraphing on October 7th, says that the American pilot, Mr. Fausett, in a Curtiss-Oriole aeroplane, left Chicago on the Pacific Coast on October 5th, crossed the Andes at a height of 10,000 ft., followed the Marañon River into the Amazon basin, and reached the mouth of the River Tigre, where a violent storm forced him to descend on a sandbar, after flying 435 miles in six hours. His airscrew was broken in landing.

The mouth of the Tigre is only 60 miles from Iquitos, and Mr. Fausett, who was not injured, was picked up by a launch and taken to Iquitos, where he was accorded a tremendous ovation.

This is one of the finest aeroplane flights on record and confirms all that Squadron-Commander Dyott, late R.N.A.S., told this country in 1919 about the possibilities of air communication between the Pacific Coast and the Amazon basin.

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On August 7th, for the second time in succession, B.T.H. Magnetos helped Mr. J. H. James to secure the Aerial Derby Trophy for First Place.

His machine—"Mars I"—The Gloucestershire Aircraft Company's biplane, popularly known as the "Bamel," has a 450 H.P. Napier Lion engine, equipped with a **B.T.H. A.V. 12 Magneto** and this year averaged 179½ m.p.h., being 16 m.p.h. better than last year.

B.T.H. Magneto Successes.

Second Place was gained by Mr. R. A. de H. Haig, flying a Bristol Bullet machine, equipped with a 440 H.P. Bristol Jupiter engine and a **B.T.H. A.V. 9 Magneto.**

Third Place was secured by Mr. F. P. Raynham, in a Martinsyde F. 6 machine, equipped with a 200 H.P. Wolseley Viper engine and a **B.T.H. A.V. 8 Magneto.**

B.T.H. Magnetos were also fitted to the machines gaining **Second, Third** and **Fourth** places in the 1922 **Aerial Derby Handicap** and to the machines gaining **First, Second** and **Third** places in the **August Open Handicap.**

This is the fourth successive Aerial Derby in which B.T.H. Magnetos have been fitted to machines gaining the First and Second places!

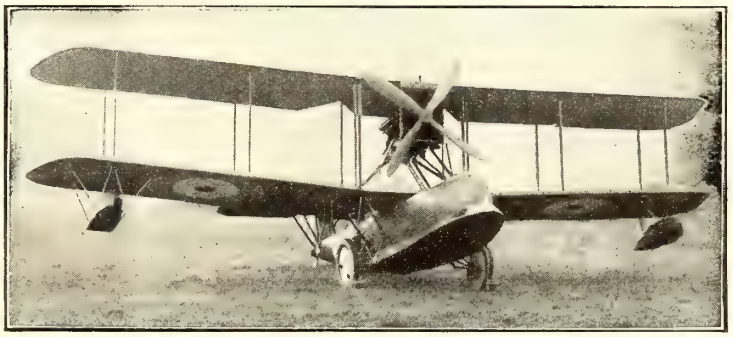
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HONOURS FOR THE R.A.F. IN IRAK.

The King has given orders for the following promotions in and appointments to the Most Excellent Order of the British Empire, in recognition of distinguished services in Irak during 1921. To be dated February 1st, 1922 :—

C.B.E. (Military Division).—Wing/Cmdr. W. F. MacNeece, D.S.O., D.F.C., R.A.F.

O.B.E. (Military Division).—F/Lt. F. Petch, M.B.E., R.A.F., F/Lt. C. H. Tancred, M.B.E., R.A.F.

M.B.E. (Military Division).—F/O. J. M. Wyer, D.S.M., R.A.F.; F/Lt. A. P. Ledger, R.A.F.; F/Lt. E. C. W. Fitzherbert, D.S.C., R.A.F.; F/O. J. W. Hustwaite, R.A.F.

The King has approved of the following rewards for distinguished services rendered during active service operations in Irak during 1920-21 :—

Bar to D.F.C.—F/Lt. C. B. S. Spackman, D.F.C.; F/O. E. Brewerton, D.F.C.

D.F.C.—S/Ldr. W. Sowrey, A.F.C.; F/Lt. M. Thomas, A.F.C.; F/Lt. H. S. P. Walmsley, M.C.; F/O. F. K. Damant.

Distinguished Flying Medal.—244308 AC.1 T. G. Banks. 47558 F/S. J. Birch, 39018 AC.1 R. Hayne, 89300 AC.1 P. A. Hughes, 336589 L/AC. S. L. Palmer.

Meritorious Service Medal.—401649 Sjt. S. W. Blight, 17396 Sjt. A. V. Brooker, 19797 Sjt. A. Figg, 329321 L/AC. (actg. Cpl.) F. Garrod, 313813 F/S. W. P. Luscombe, 148401 S/M. C. F. Mountfield, 314819 F/S. H. A. C. Oland, 8293 Cpl. G. E. Taverner.

The following officers and airmen of the Royal Air Force have been mentioned in dispatches for distinguished service rendered during active operations in Irak during 1920-1921 :—

F/O. C. W. Booth, M.B.E.; S/Ldr. R. Colishaw, D.S.O., O.B.E., D.S.C., D.F.C.; F/O. F. J. Fogarty; S./Ldr. V. Gaskell-Blackburn, D.S.C., A.F.C.; F/O. G. A. Gowler; F/Lt. O. G. Gregson; F/Lt. C. W. Mackey; S/Ldr R. S. Maxwell, M.C., D.F.C.; Wing/Cmdr. V. O. Rees, O.B.E.; S/Ldr. E. A. B. Rice, M.C.

149455 Cpl. C. E. Andrews, 308977 L/AC. (actg. Cpl.) J. R. Briggs, 864 F/S. C. F. R. Bunting, 331411 L/AC. F. Carter, 340506 Cpl. W. T. Eberwein, 6071 Cpl. (actg. Sjt.) A. C. Elmy, 157606 AC.1 W. H. Harrison, 204601 Cpl. W. R. Henderson, 780 Sjt. G. W. Hepple, 252623 L/AC. N. Hetherington. 156440 AC.1 B. J. Jennings, 157884 Cpl. I. Mackintosh, 89812 AC.1 R. J. Meals, 1349 Cpl. ((actg. Sjt.) S. C. Murton, 332458 AC.1 G. O. Pitcher, 301859 Sjt. H. Thompson.

Somaliland Honours.

The King has been graciously pleased to approve of the following rewards for distinguished services during acting service operation in Somaliland in March, 1922 :—

D.F.C.—S/Ldr. A. S. C. Maclaren, O.B.E., M.C , A.F.C.

Distinguished Flying Medal.—81000 L/AC. J. A. Bridgman

Mention in Dispatches. F/O. G. S. Smith.

An Arabian Honour.

The following officer of the Royal Air Force has been mentioned in dispatches for distinguished services during active service operations in the Hinterland of Aden in February, 1922 :—

F/O. W. N. Plenderleith.

PERSONAL NOTICES.

Deaths.

HOLME.—On October 4th, 1922, at Kirkuk, Mesopotamia, the result of an aeroplane accident, F/Lt. Robert Charles Lyon Holme, M.C., R.A.F., late of the 1st Somerset L.I., only son of the late Robert Francis Lyon Holme, and grandson of the late Charles Trask, of Norton-sub-Hamdon, Somerset, in his 26th year.

LOCKE-WATERS.—On October 6th, killed in Mesopotamia, the result of a flying accident, Evelyn Archer, only son of the late Major Locke-Waters and of Mrs. Locke-Waters, of Cape Town.

RANSON.—On October 10th, at Shotwick, Cheshire, as the result of a flying accident, F/O. Hubert Everitt Ranson, R.A.F.

YOUNG.—On October 6th, at Ismailia, Egypt, suddenly, Sheila, the wife of F/Lt. Young, R.A.F.M.S., younger daughter of the late Rev. W. Gould-Taylor, New South Wales, and sister of Mrs. Guilfoyle, Farnborough, Hants.

Engagements.

BULLER—WARD-PRICE.—The engagement is announced between John Archibald Redvers Buller, late K.R.R.C. and R.A.F., son of the late Rev. E. H. Buller and of Mrs. Seymour, of Roche de Lion, Gorey, Jersey, and Marjorie, daughter of the late Henry Ward-Price and of Mrs. Ward-Price, of 14, Hanover Square, W.

SKINNER—STURRIDGE.—The marriage arranged between Lionel Skinner, of 15, Norfolk Crescent, W.2, and Elsie, daughted of Dr. and Mds. Sturridge, of 127, Dadtmouth Road, N.W.2, will take place at St. James' Church, Spanish Place, on October 25th.

Marriages.

BOLTON—ANSTEY.—On September 11th, at Livingstone, N. Rhodesia, by the Rev. C. C. Cooke, Capt. Alastair C. Bolton, M.C , late R.S.F. and R.F.C., only son of Mr. and Mrs. F. C. Bolton, of Aberfoyle, Perthshire, to Dorothy E. Anstey (Doshie), widow of S/Ldr. Chisholm W. Anstey, S.W.B. and R.A.F.

DAVIES—O'CONNOR.—On October 9th, at St. Margaret's, Westminster, Capt. Idris Meredith Davies, late The Welch Regiment and R.A.F., son of Mr. and Mrs. Timothy Davies, of Alltyferin, Carmarthenshire, and 25, Collingham Gardens, to Gwendoline Alice Gertrude, daughter of Mr. and Mrs. Maurice O'Connor, of Ballygunge, Calcutta, and Ballygunge, St. George's Hili, Weybridge.

WELSH—DALZELL.—On October 2nd, at St. George's Church, Hanover Square, Wing/Cmdr. W. G. Welsh, D.S.C., A.F.C., R.A.F., to Miss Ruth Edridge Dalzell.

LOW—LOGAN.—On September 30th, 1922, at Durban, South Africa, Philip Victor Chabot Low, late Lieut., Black Watch and R.A.F., third son of Mr. and Mrs. Alexander G. Low, of 9, Holland Park, W.11, to Alison, fourth daughter of the late Charles Logan and Mrs. Logan, of 21, Lothian Street, Hawick.

Births.

CASEY.—On September 30th, at Hall's Hotel, Antrim, to Dorothy, wife of F/O. R. F. Casey, D.F.C., R.A.F.—a son.

COOK.—On October 10th, at 1, St. Mark's Avenue, Salisbury, to Doris Elizabeth, wife of F/O. B. H. Cook, R.A.F.—a daughter.

LOCKWOOD MARSH.—On Sept. 30th, at Hockering Gate, Woking, to Lieut.-Col. and Mrs. W. Lockwood Marsh—a son (stillborn). (South African papers, please copy.)

MELITUS.—On Sept. 24th, at The Cottage, Enford, Wiltshire, to Hebe, wife of Capt. P. N. Melitus, Royal Warwickshire Regt., attd. R.A.F.—a son.

SMETHAM.—On Sept. 7th, at 1, Baldhu Villas, Netley Street, Farnborough, Hants, the wife of F/O. S. J. Smetham, R.A.F.—a daughter (Sheila).

AN APOLOGY TO THE REPORTERS OF THE "TIMES."

In the issue of The Aeroplane dated October 4th we published a paragraph headed "Some Cup" in which we attributed to the *Times* the publication of a paragraph mixing up the King's Cup Race and the Aerial Derby in connection with a dinner given at the Carlton Hotel. After quoting the paragraph in full we proceeded to comment upon it in the following words : "Evidently the reporter had celebrated the event adequately. The mixture of the King's Cup Race with the Aerial Derby seems to indicate that other mixtures must have had a part in producing this amazing result." As a fact, the paragraph upon which we commented did not apear in the *Times* and in our issue of October 11th under the heading of "An apology to the *Times*" we published a paragraph admitting our error and expressing our sincere apology to the Directors of the *Times* for our mistake; but we omitted to express, as we should have done, our sincere apologies to the reporters of the *Times* for having published what they rightly regard as an offensive libel upon them, inasmuch as our article undoubtedly imputed that a reporter of the *Times* was drunk. We desire now to make good this omission on our part and to offer the Reporting Staff of the *Times* our sincere apology for the publication of this offensive paragraph of which they justly complain, and to express our regret for the annoyance caused.

For the Proprietors of The Aeroplane,

(Signed) C. G. Grey.

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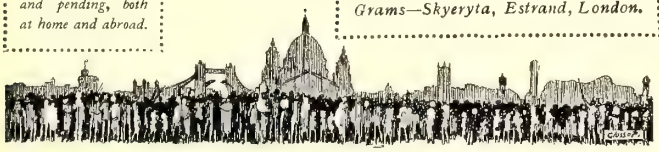
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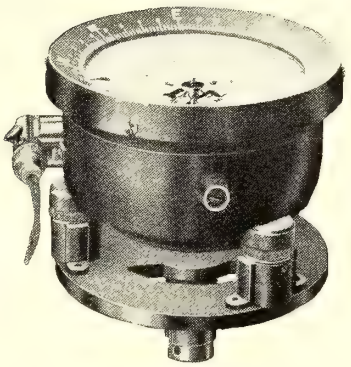
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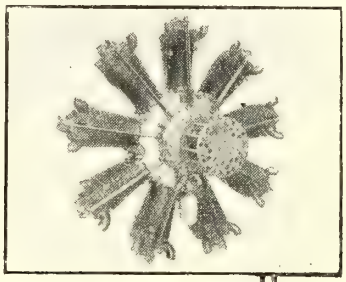
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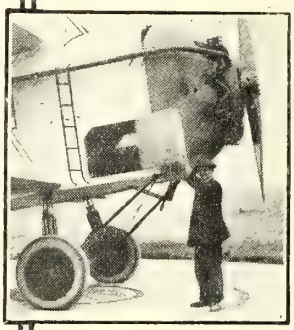


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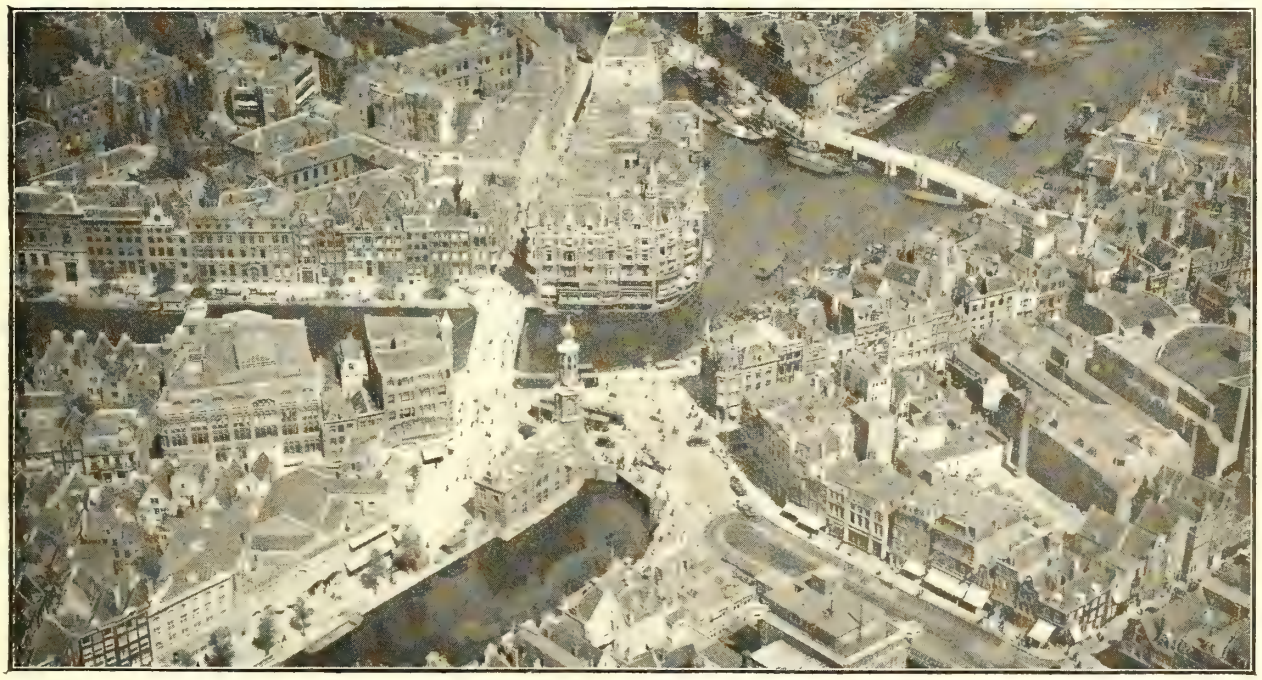
THE AEROPLANE

Edited by C. G. Grey

WEDNESDAY, OCT. 25, 1922.

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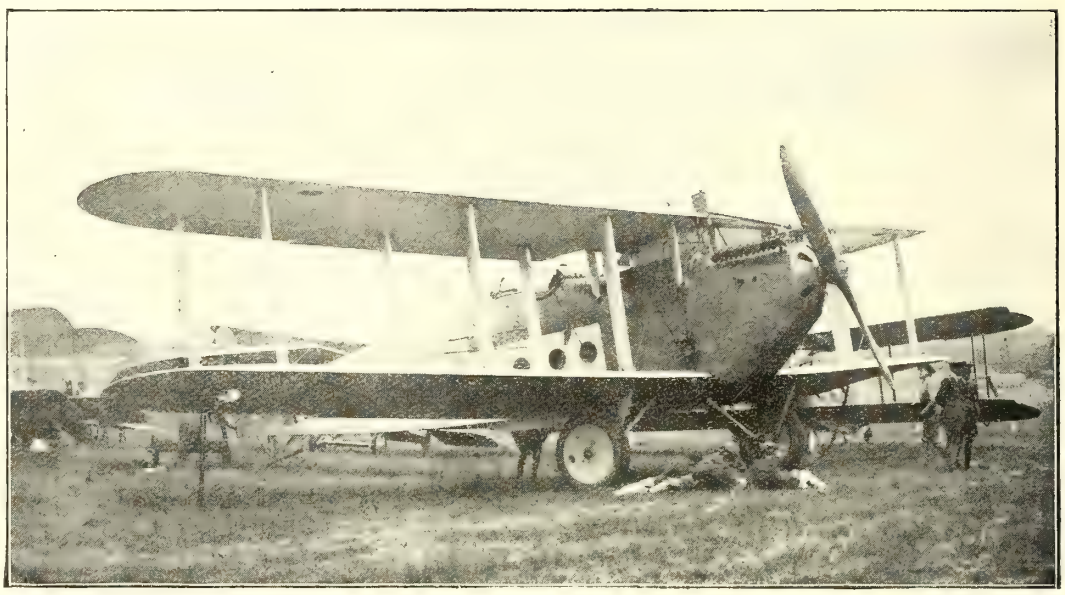
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THE AEROPLANE

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ON THE CHANGES IN THE GOVERNMENT.

However glad all right-minded people in this country may be at the enforced resignation of Mr. Lloyd George and at the prospect of the return to power of a straightforward honest Government which will not fly off the handle on wild-cat schemes and will restore the honourable reputation of the British Government abroad one cannot but regret that the change of Government will necessitate changes at the Air Ministry. As Secretary of State and as Under-Secretary respectively Captain F. E. Guest and Lord Gorell have won the highest regard and respect of everybody concerned with aviation.

It is always easy to gauge the honesty of purpose and the public morality of a Minister of the Crown by his method of answering questions in Parliament. Never once during Captain Guest's tenure of office has one perceived the slightest attempt to give a tricky answer to a question. Still less has he ever attempted to suggest a falsehood by suppressing truth. In the House of Lords Lord Gorell has been equally open and straightforward in all his dealings with aviation.

In introducing the Air Estimates Captain Guest has been not merely transparently honest in his statements but he has even dared to strike out on a definitely constructive line of his own and to tell the House that the Nation must be prepared to pay for a bigger Air Force in the future. And Lord Gorell has taken a precisely similar line in the House of Lords. Whatever political vicissitudes may produce in the future it will always be remembered that it was in the Ministry of Captain Guest that the Royal Air Force received its Magna Charta and was definitely recognised as the First Line of Defence of the British Empire.

In taking leave of Captain Guest and Lord Gorell, who presumably cannot hold office under a Conservative Government, one desires to thank them both on behalf of the whole aeronautical community for the good work which they have done for aviation and to express the hope that when the political pendulum again swings they may return to aeronautical office. In the meantime one can only hope that both of them will remain closely in touch with air affairs so that when the time comes they may be as well informed of aeronautical progress as they are at present.

The retirement of Mr. Churchill under the change of Government will also remove a very great friend of aviation from a high place in the Government. It is a great pity that when a year or so ago, as one understands, Mr. Churchill was definitely offered the leadership of a new Conservative Party he did not take it and that the people who made him the offer did not accept his conditions. Mr. Churchill has the qualities of a great leader which, unfortunately, Mr. Bonar Law has not, and Mr. Churchill realises more than any other man of Cabinet rank the importance of aviation to the British Empire.

One would like to take this opportunity of wishing Mr. Churchill an early and complete recovery from his recent operation and to express the hope that while he is out of office he may find time to pay a little more attention to aviation than has been possible for him of late.

It is stated that Captain Guest's successor as Air Minister is to be the Marquess of Londonderry. He is eminently the best person for the office. He has already done excellent work at the Air Ministry and has displayed administrative ability of a high order. It is sincerely to be hoped that he will put aside for the time being his work in Ulster and will address himself to the greater task of maintaining the status of our new First Line of Defence and of helping the progress of Civil Aviation.

It is possible that some of the so-called Air M.Ps. may consider themselves better entitled to the office of Air Minister than is Lord Londonderry, but though one is quite ready to acknowledge the good work which all the members of the Parliamentary Air Committee have done for aviation it is indisputable that a man of the standing of Lord Londonderry can do very much more to enhance the importance of the Air Ministry as such than can any Member of Parliament who is interested in aeronautical affairs.—C. G. G.

ON CONTINUING THE GOOD WORK.

One thing is certain about the *Daily Mail* gliding competition and that is that everybody who has theories about aeroplane design has had about half their pet theories thoroughly upset and has had the other half of their pet theories confirmed, but as there is always some other person with precisely opposite theories which are equally 50 per cent. confirmed and 50 per cent. upset apparently all the theories in the world have been both confirmed and upset by one machine or another among the competitors. Fast gliders and slow gliders have done equally well, light machines and heavy machines have done equally well, balanced and unbalanced controls have done equally well or equally badly as the case may be. Apparently what is wanted now is a whole series of experiments with a whole series of different machines of different types specifically built to prove and disprove certain theories, and it is necessary to try them all in different strengths of wind on different slopes of different types.

A thoroughly comprehensive series of tests of this kind would be of genuine assistance to the development of aviation, and such tests can be carried out adequately for very much less than the money which is now wasted on tests of purely academic value and frequently with very misleading results at places like the N.P.L. and Farnborough. The great thing is to keep these gliding and soaring tests going and to keep up an interest now that the enthusiasm raised by the *Daily Mail* Competition is over.

What is obviously desirable is that some well-to-do person should at once put up another prize for a competition early next year, for preference in March when strong winds are supposed to occur. It is not certain whether the *Daily Mail* will in fact put up that £5,000 which was mentioned when this £1,000 prize was put up, and in any case one imagines that the conditions for a £5,000 prize would be such as can only possibly be fulfilled two or three years hence. What is wanted is a smaller prize of, say, another £1,000, which a man with original ideas of aeroplane design has a reasonable chance of winning within the next few months.

Under normal trade circumstances such a prize would naturally be put up by the Society of British Aircraft Constructors in the hopes of discovering thereby a few inspired aeroplane designers to help or perhaps even supersede those whose ideas are now becoming stereotyped. But one does not imagine that the S.B.A.C. in these days can afford such luxuries as thousand pound prizes. It therefore remains either for somebody to find a rich man interested in aviation who will put up such a prize, the conditions to be arranged by the S.B.A.C., or else for the technical side of the Air Ministry to induce the Treasury to sanction the putting up of such a prize, the rules to be arranged by the S.B.A.C. and Air Ministry in co-operation.

A mere £1,000 put up as a prize in this way would result in the expenditure of many times as much money in the aggregate by the various enthusiastic people who would hope to win the thousand pounds. Thus the actual results achieved would be very much greater than those achievable by expending a similar sum of money on pure research, especially when research is in the hands of the unpractical academic people who as a rule control it.

One knows that the thoroughly practical people at the Air Ministry are all in favour of encouraging gliding and soaring experiments in the hope of improving the breed of aeroplanes, and one can assure them that there is no cheaper, better or more amusing way of carrying on research. One can only hope that they may be able to carry their point against the purely academic people and so induce the Air Council to give practical encouragement to gliding and soaring not as a sport but as a serious means of helping the development and progress of British aviation.—C. G. G.

ON THE GLIDING COMPETITION—II.

Owing to lack of space last week it was impossible to say all that really ought to have been said about the happenings, even up to Monday night.

The Keenness of the R.A.F.

In the first place, acknowledgments should be made to the very great assistance given by the Royal Air Force. A Flying Officer and about twenty or thirty picked men were sent down from Uxbridge to help in every way possible. And help they certainly did, for whenever there was any hard work to be done the R.A.F. were sure to be in it. They helped to man-handle gliders up "Hill 60," and when machines descended onto the plain below Firle Beacon they tramped miles down hill and hauled the machines up again. The R.A.F. also lent a kite-balloon winch which was manoeuvred from the Seaford side of the ridge up the easier Southern slopes to the top of Hill 60 and there as soon as it was ready towed the machines on a steel cable up the hill from the tents.

Apparently every officer of the R.A.F. who could possibly get away on any excuse whatever, all the way from Air Vice-Marshals downwards, has visited the scene of the competition, but so far as one can discover the highly scientific wind tunnel experts and slide rule merchants have not displayed a similarly intelligent practical interest in the new method of studying aerodynamics. The keenness of all ranks in the R.A.F. to help the success of the competitors and to learn whatever is to be learnt from the gliding experiments shows the excellent spirit which possesses the new R.A.F. And one hears that the people right at the top of the Air Ministry are just as anxious to help this new branch of science. It is earnestly to be hoped that as Captain Guest has to be replaced now that the Nation is well rid of Mr. Lloyd George the new Air Minister will display equal practical interest.

Stock Jokes.

One of the stock jokes of the Competition even before it began was Mr. J. J. O'Freddy, of Sheerness, who claims to have a kind of tandem monoplane glider on top of which, according to the picture published in the non-technical Press, is a complete yawl rig with jib, mainsail and mizzen as fitted. Mr. O'Freddy presented himself on Friday or Saturday to the Aero Club officials and said that he was not quite sure whether to bring his glider by car from Sheerness or to sail it over. The question was left in doubt until about midday on Monday when a telegram arrived for Mr. Harold Perrin signed "O'Freddy" stating that the glider had left Sheerness at 9.25 and had crashed on a hill near Maidstone at 9.38.

Some of the Aero Club officials who still have a childlike faith in the genuinensss of anything that appears on paper, especially on an official telegraph form, began to think that there must be something seriously wrong about our theory of aerodynamics if it were possible to sail a glider from a perfectly flat place like Sheerness to much higher ground near Maidstone, and to do it in 13 minutes mark you. Then Colonel The Aerial Darby, of the Disposal Company, quietly remarked that he supposed that the lorry had hit something coming down the long hill into Maidstone.

Then followed an argument as to whether it was possible for any lorry to get from Sheerness to anywhere near Maidstone in anywhere near 13 minutes, and so the mystery was left unsolved. The question is still unanswered as to whether Mr. O'Freddy is perfectly serious and honestly believes that it is possible to make a glider sail or whether he is simply perpetrating a very elaborate leg-pull on the members of the Royal Aero Club.

Anyhow, he is by no means alone in having quaint ideas, for on Monday afternoon there arrived at the tents another beautiful freak aircraft of the class which Major Brian Ferrand wittily called an "extraornimayhopter." This belongs to a Mr. Kingswell and consisted, so far as one could see in its unassembled condition, of a vast number of aluminium tubes to which ultimately no doubt wings were to be attached. The wings, however, are of little interest compared with the power-plant, which seems to go several points better than mere perpetual motion in that it not only gets power for nothing but actually increases it when it has got it. To make it lighter it has its iron-work painted with aluminium.

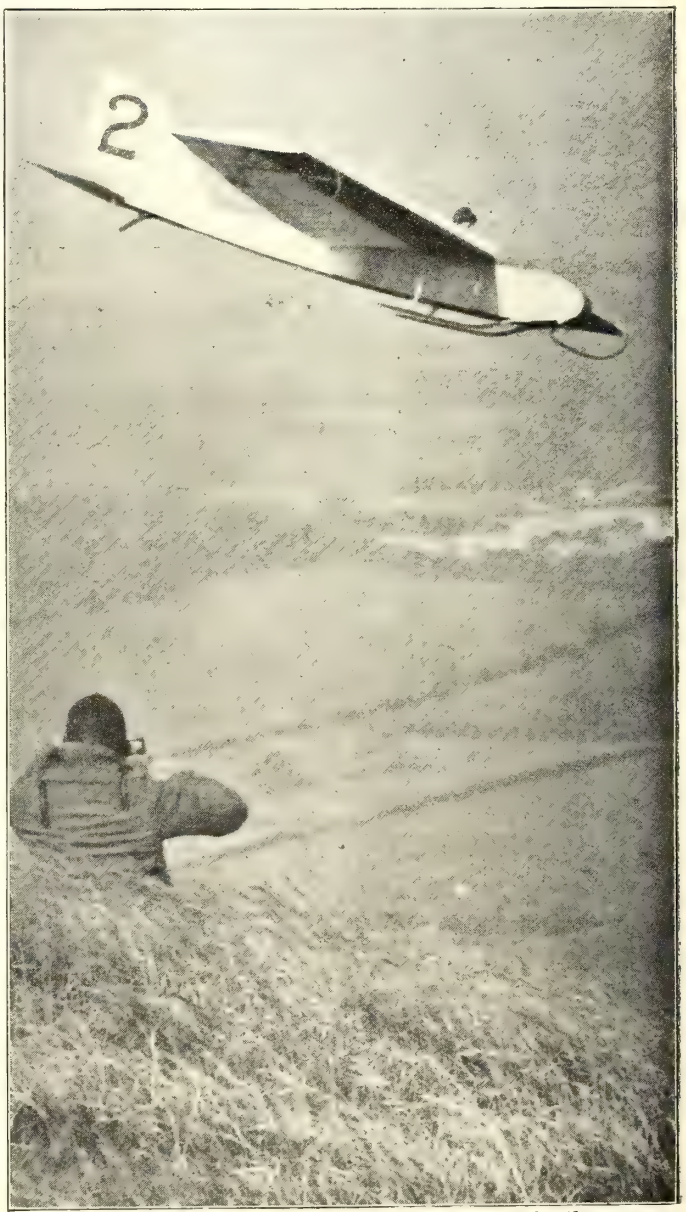
The apparatus contains a wonderful kind of blower arrangement something like a cross between a Blackman fan and the spiral intake pipes of a "Jupiter" engine. On the same spindle as this is what would be an ordinary airscrew but for the fact that it is made of aluminium sheet and does not conform to any known aerofoil section. The theory is that the wind blows into the fan arrangement and makes it spin round and as a result the airscrew itself turns and provides the necessary power to drive the aeroplane. Viewed as a mechanical proposition it seems to be several hundred per cent. better than standing in a clothes basket and lifting oneself by the handles.

Several enthusiastic Air Force mechanics were told off almost in hysterics to assist in putting it together, but their help was firmly refused and they were asked merely to see that the public did not tread upon or commandeer any of the component parts. Somehow the general appearance of the affair and the probable effect of standing it on the top of Hill 60 with a howling gale shrieking through the "power plant" called irresistibly to one's mind the pathetic song of Mr. Bert Coote, beginning "A noise annoys an oyster."

An Aeroplane Interlude.

One of the features of the Sunday performance was a very pretty bit of flying by Captain Geoffrey de Havilland, who came over from Stag Lane on a D.H.9 with a couple of passengers. Evidently it was his intention to land if possible on the Ridge, so he flew over it quite low down and had a good look at it. Then he came round the second time so low that it looked as if he were actually about to land on the South slope, whereupon all the flying people began yelling at all the non-flying people to get out of the way. Very wisely Captain de Havilland decided not to land there, as getting off again would have been next to impossible with the wind in the direction it was, so he came crosswise over the ridge at a height of about 20 feet, went off towards Lewes and finally landed in a field near Beddingham, where the machine was pegged out for the night.

Quite a pathetic sight on Sunday was Mr. Shaw, who is responsible for the Shell petrol people's big sales at Croydon.



Mr. Raynham close to the edge of the Beacon in the course of his big flight, being filmed by Mr. Fokker.

He wandered about from machine to machine lamenting the fact that he could not do a stroke of business, but later in the day he seemed more cheerful and announced that he had actually done some business in that he had filled a cigarette lighter for a French gentleman. At any rate he had a day's complete holiday for a change.

Mr. Raynham's British Record.

On Tuesday, owing to the exigencies of the Press, one had to be in London in order to produce last week's issue of The Aeroplane, the whole of the rest of the male Staff being on holiday at the Gliding Competition though one believes that they have been under the impression that they were doing useful work all the time. Consequently one did not personally see anything of Mr. Raynham's wonderful performance. Those who did see it, however, were filled with enthusiasm. It appears that Mr. Raynham made a start somewhere between 10 and 11 o'clock from the crest of Firle Beacon, but after a few minutes made a mistake and touched ground on the top of the Ridge. However, he soon got going again and on this occasion remained in the air for 1 hour and 53 minutes, thus beating all soaring records except the 2 hour flight and the 3 hour flight made by Herr Hentzen on the Wasserkuppe, and setting up a British record that was worthy of being so called.

This time instead of gliding out over the cup between the spurs as he had done in his 11 minute flight he remained practically on top of the Ridge. His first forward dive put him into a big up-current which raised him about 50 feet and from there he moved up and down the Ridge for about a mile, covering this distance in all about twenty times, his height varying between 30 feet and 70 feet above the Ridge itself. Instead of actually turning at the end of each stretch he merely swung his tail about 90 degrees, losing height a little coming down wind and climbing against the wind.

Two or three times he did actually make complete turns and twice at least he missed the upward current so that he had to dive below the level of the Ridge. But on each occasion he found an upward draught which lifted him well above the Ridge again. It seemed he was experimenting rather than actually making his great effort for the first prize, for instead of sitting over the one place where he found the best permanent up-draught he kept on moving, as already indicated. Finally he missed the up-draught badly and got so low below the Ridge that he could not get back. Consequently instead of trying to prolong his glide to its possible limit he very wisely manœuvred to land on the spur which juts out below Firle Beacon itself so that he was well inside the 800 yards specified in the regulations for the prize.

It is said that the wind during his flight was blowing in gusts varying between 18 and 35 miles an hour, so that one is not at all surprised to hear that he was evidently working pretty hard throughout the flight and that when he came down he complained of having something like writer's cramp. This apparently was due to the fact that his elevator wires had stretched somewhat and that he had to move the controls considerably more than would otherwise have been necessary. Also he said that the machine was a trifle nose heavy in any case and had to be held up all the time. One heard on Wednesday that he was altering the balance of the machine slightly and making adjustments by means of which he hoped to beat all records if the wind held.

The controls on this machine are peculiar. Instead of the usual control-column the aileron balance-wire runs straight across the pilot's cockpit, and he works his ailerons by using an ordinary turnbuckle as a handle, moving it to right or left for lateral control. Vertical control is by means of a short lever worked by the right hand, and there is the usual rudder bar. This is so because the machine was built in such a hurry that there was no time in which to make and fit a proper "stick" control for ailerons and elevator together. The present arrangement works all right but it is tiring to the fingers, so Mr. Raynham afterwards fitted a wire loop wrapped with fabric to make a handle on the aileron wire.

Two more machines arrived on the Tuesday. One was that of Mr. Prosser, an extraordinary kind of biplane. One seems to remember the name of Mr. Prosser as a pilot of Caudrons before the War. If one remembers rightly he flew Caudrons at Hendon and one heard afterwards that he had gone to Australia or New Zealand. One feels sure that many of his friends of those days will be glad to hear that he is back in this country and would like to have his address.

Upsetting the Theorists.

Mr. Raynham's wonderful performance finally upset all those wild theories of the aerodynamical experts who held that it was only possible to soar under very exceptional circumstances. The argument about the Wasserkuppe was that two ranges of hills splaying out at an angle of something between 45 and 90 degrees meet at that point and that between these two ranges the ground rises all the way from a vast plain to the Wasserkuppe itself, which is 3,000 feet above the beginning of this plain. Consequently, say the scientists, you have at the Wasserkuppe millions of cubic miles of air moving steadily upwards for 3,000 feet and all concentrated at this one point.

Personally one has always believed that this theory was pure unadulterated bunkum, like most of the theories of aerodynamical scientists in this and other countries. Now we have definite proof of the fact. Mr. Raynham's performance, which, it is to be noted, was that of an enthusiastic amateur with vast experience as an aeroplane pilot and more than his ordinary share of brains, has to be put up against that of the Germans who are perhaps no more experienced than he is as aeroplane pilots but who so far as soaring is concerned have had two years of practice and study of wind currents round the Wasserkuppe.

Therefore it can fairly be claimed that Mr. Raynham was at a very great disadvantage in the matter of gliding experience. Consequently if one adopts the French line of argument with which they excused the fiasco at the Puy de Combegrasse it is evident that Mr. Raynham, to put up such a performance as he did, must have been flying under much more advantageous topographical conditions than even the performers in the Rhön Competition.

A Geographical Fact.

Consider the geography of the Itford-Firle ridge. The South side of it slopes down to the sea about 5 or 6 miles away. The North side drops steeply down in the form of half-cups as one has already mentioned. These face to the North-East from Firle to the Sea, due North from Firle to Beddingham and North-West from Beddingham to Itford, so that the ridge has three Northerly faces and itself forms a cup to the South. To the East of it is the still higher Wilmington ridge, which certainly would not help matters, as the wind was blowing more or less sideways along it just as it was blowing along the Firle ridge.

At the foot of the Firle and Wilmington ridges is the lowest point of a plain a matter of perhaps 5 or 6 miles wide, which rises steadily to the North and East, where it then develops a series of small broken ridges which are at least as high as the Firle ridge itself. Beyond these one comes to the North Downs, which include Crowborough Beacon and the various other beacons running along to the Weald of Kent, several of which run up to a thousand feet or more. Consequently the wind, instead of blowing up miles of rising ground to the Firle ridge, was in fact actually coming off very much higher hills and blowing down the slope of the plain till it bumped into the North-East slope of the ridge, where it was thrown up again and so caused the up-currents on which the soaring was done.

All of which is diametrically opposed to the wonderful theories by which the German performances were explained. The truth of the matter is exactly as one stated last week, that if one can discover a steep ridge with a concave face into which the wind is blowing without direct interruption it is possible to go on soaring as long as the wind holds.

If a building shaped like half a "stadium" were erected in a flat plain and made so that it could be turned with its concave face to whatever wind might be blowing it would be possible to soar whenever the wind was strong enough, and it might pay the Government a great deal better to put up such a building than ever its numerous, costly, and fairly



LIGHT RELIEF.—On the left "The Bride": on the right, the pedal-glider, neither of which were a serious menace to the prize-winners. They are described in further detail later in this article.

futile wind-tunnels have paid it. Glider experiments can at any rate be checked by the personal experience of skilled test-pilots whereas the great mass of wind-tunnel experiments, which are generally done by men with little knowledge of actual flying, have in an enormous number of cases proved to be definitely misleading.

An Interlude by G. D.

The duty of an Editor being to edit—among other things—one had to be in Town on Tuesday and could not get back to Itford till Friday, so at this point one hands over the narrative and comments to Mr. Geoffrey Dorman, more commonly known to his friends and enemies as G. D., who was taking his annual holiday on the Ridge.—C. G. G.

* * *

In the last issue of The Aeroplane the Editor finished up by stating that Mr. Fokker made a long 37½ minutes' glide which he missed seeing, as he had by that time returned to Brighton. He also remarked that he could not understand why the Royal Aero Club officials chose Seaford as their headquarters instead of Brighton. It may be well to point out here that the officials of the Royal Aero Club had to be on the hill by 08.00 hours in the mornings and were unable to leave it till dusk in case any competitors wished to make a flight of any sort. In the evening everybody had to meet together to discuss the events of the day and make arrangements for the following day, and in most cases by about 21.00 hours in the evening they were just about ready for bed. Not being night birds who merely arrived at the hill round about lunch time and left shortly afterwards they therefore deemed it wisest to go to a quiet hotel near at hand and Seaford was the best place available.

It is interesting here to note that towards the end of the week the Editor of The Aeroplane found that even he had to come to Seaford, where he duly arrived. For the above reasons it falls upon me to describe Mr. Fokker's flight and the majority of the flights of the week.

[Note.—Seaford has a good hotel or two or three but its roads are of the kind usually marked "Not Adopted" in the London districts.—Ed.]

On Monday evening we had the first really big flight of the week. About 17.00 hours the wind rose again and Mr. Fokker ascended by himself in the two-seater with about 140 lbs. of ballast. He started from Firle Beacon, went straight up into the air about 200 feet, and simply looked as if he could stay there for good and all. He carried on a running conversation with everybody on the ground and by the end of 30 minutes he seemed heartily bored with the whole affair and merely wished to stay up until he had qualified for the prize. When he had made 30 minutes' flight he turned in over the hill and made a perfect landing within a couple of hundred yards of his starting point in more or less semi-darkness. On being asked why he had come down he replied that he "did not make night flying." After this flight it became clear that provided the weather held it would merely develop into an endurance test which, in fact, by the end of the week it did.

Tuesday's Big Performance.

On Tuesday morning there was a strong North-Easterly wind of about 25 miles an hour. Mr. Raynham had left his machine out over-night in the lee of a wood below Firle Beacon. We got out there about 08.00 hours and succeeded in dragging the machine up the hill and by 10.00 hours Mr. Raynham was ready to make a start. He shot into the air from the elastic and at once gained considerable height, but after a couple of minutes in the air he got blown back over the Ridge and just could not pick up the upward current, so he landed on the hill on the exact point from which he was started. The bunjy-ropes were brought into position again and once more he took the air, gaining height immediately and making off down the Ridge in the same direction as he and Mr. Fokker went the previous day.

He worked over one pocket for round about 40 minutes, by which time it became rather bumpy, so he came back and worked up and down and around Firle Beacon. He seemed to be perfectly at home, though it was noticed that he was making no use whatever of his rudder, doing all his turns on his ailerons. There was tremendous excitement when he passed Mr. Fokker's time of 37½ minutes, the Royal Air Force mechanics, under Flying-Officer Gowler, being the most enthusiastic of the whole lot. These Air Force men worked splendidly all the week and their keenness and smartness was good to see. Mr. Raynham carried on working round Firle Beacon with the wind meantime getting stronger and stronger. On several occasions he appeared to have lost the upward current, but with a dive he managed to regain it.

When he had been up for about an hour Mr. Merriam's machine was seen to be coming up to Firle Beacon. When the machine finally arrived Mr. Raynham moved back to his original position in order to give Mr. Merriam a good chance of taking off. Here, however, he found that the current in which he had been previously working was not now in position and he was seen to be dropping, and finally lost the current altogether and landed down below Firle Beacon at the bottom of the Ridge within about 400 yards of the starting point.

This chivalrous act of moving away from the current which he was working so well to give Mr. Merriam a fair chance quite possibly lost him the thousand pound prize, for had he stayed over Firle Beacon there is no reason why he should not have kept up all day. He told me afterwards that his controls were not large enough, and that he had landed out of control.

After this Mr. Merriam's machine was brought into the position whence Mr. Raynham started. A dense crowd had arrived by now and had collected all round the machine. The catapulting arrangements were in position and Mr. Merriam with his elevator full up gave the word to let go. The glider jumped straight into the air vertically, stalled and did an Immelman turn. It crashed straight onto its nose, unfortunately missing many of the spectators who had crowded round the machine in their usual stupidly ignorant way.

The whole of the nose was smashed in and the tail "concertinaed" and it looked as if Mr. Merriam had been very severely hurt. However as soon as the machine was lifted off Mr. Merriam walked out quite unhurt and at once



IN THE AIR.—M. Maneyrol on the Peyret to the left and Mr. Olley on the Fokker to the right.

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started negotiations to obtain another machine. He should choose as his motto " Always Merriam bright."

During lunch a machine was observed high up over Beddingham Hill. On looking at it through a pair of powerful glasses it was seen to be a kite, which we afterwards learnt was being flown by Mr. Fokker, whether to amuse himself or to discover something about wind currents I do not know. However, the majority of spectators, even though they were told quite definitely that it was a kite refused to believe it and were convinced that it was the Klemperer machine putting up a duration record.

In the afternoon Mr. Gordon England made a short flight from Beddingham Hill, but could not find an upcurrent on this slope of the hill so was forced to land down below after a flight of about 2 minutes. While Mr. Raynham was in the air one of two young ladies who were watching the flight remarked to the other " Yes, it's all very nice, but compared to real flying this gliding is rather effeminate, isn't it? " As we were going back a flock of seagulls landed on the top of th ehill. Among them was a crow, which caused Master Paul Bewsher to remark " 'Ere, coo-lumme, there a seagull who's lost its mother." After that the wind was too strong for any further flying during the day, so we all returned to Seaford.

Wednesday's Washout.

On Wednesday the wind was blowing in very much the same direction as before, though very much stronger. About 09.00 hours before most people had arrived Mr. Gordon England started off from Firle Beacon. He got in the upward current and made a very fine soaring flight, though the wind was so strong that he was unable to keep out over the hill and was blown back, making a landing on Firle Beacon while still travelling backwards. On coming down he said that the wind was very much too strong for him and he thought it best to wait until it dropped a bit, which was a very wise decision. He said that he knew the rules for landing forwards and landing sideways, but he could not quite think of the proper rules for landing backwards as he had never previously had to do this.

The Broken Wing.

The only thing to do now seemed to be to return to Itford Hill, but as we reached Beddingham Hill, or Herne Hill as it was called as it was from there that Mr. Herne made his flights, the Klemperer was met coming along the hill, Mr. Jeyes having decided to try a flight from this point. The wind was still increasing and Mr. Jeyes was strongly advised to wait until the wind was a little lower. However, he decided that he would have a try and test the conditions. He shot straight into the air, climbing at once, but was thrown about horribly by the gusts, the machine certainly resembling what Mr. Alan Bott described as " Bucking like a broncho in a Wild West show."

He went along the Ridge across the cup and met a strong downward draught coming over the shoulder which sent him straight down onto the Ridge where the slope was about 1 in 2. Naturally enough the right wing hit the ground, broke clean off, and the machine cart-wheeled over onto its back, the broken wing falling down the hill and finishing up about 200 yards away, Mr. Jeyes being buried underneath the machine. Here again it looked as if he had had a very serious smash and was probably hurt. But when the spectators arrived and lifted the machine off him he was found to be quite untouched. The wind had now increased to such an extent that it was found impossible to do any more glides, so we all returned to Itford Hill for lunch.

First Blood.

After lunch the first blood of the meeting was spilled. In the hope of livening proceedings two of the trolleys used to drag the gliders up the hill were brought to the slope outside the tents and a race down the hill was organised. The right hand trolley was manned by Mr. Raynham, Mr. Longton, Mr. Perrin, Mr. Wallace Barr and " The Blue Bird," and the other by Mr. Howard Wright, Mr. Dresser, Colonel Darby, Mr. Alan Bott and myself. One push was allowed to us to start. The trolleys quickly picked up speed, dashed down the hill and by the time they got to the bottom they must have been doing a good 45 m.p.h. The impetus carried them half way up the opposite hill, where by swinging his body Mr. Raynham steered his trolley into ours just as we were stopping. This turned our trolley's head down the valley toward Asham Farm. At the bottom of this is a brick wall with a gate in it. Seeing the trolley making straight for this and with " pukka wind up " I leapt straight off as the trolley started.

On ceasing to be an occupant and on becoming a spectator the humour of the situation struck me at once, especially as I saw the machine going full out at the bottom of the hill and saw Mr. Alan Bott successfully leaving the trolley. He rolled over about four times but was not much hurt. The next to leave was Colonel Darby, who executed two magnificent loops in the air and landed on his feet. The centrifugal force thus set up threw his stop-watch about 30 yards away in a ballistic parabola. Just before the trolley hit the wall Mr. Howard Wright left it and landed on his nose, which he nearly broke, and Mr. Dresser succeeded in hitting the brick wall and the gate. He was winded and afterwards found that he had also cracked a rib. After this trolley riding also ceased for the day. It is as well to point out here that our trolley easily won the race. The opposing team were at first under the impression that they won which, of course, is absurd.

In the evening General Bagnall-Wild arrived and the gaiety statistics took a pronounced upward trend.

[Note.—Everybody was very sorry for Mr. Dresser, who from the very beginning of the meeting, and before, was the friend and helper of everyone. His Wolseley was used as a taxi by all the officials and their friends, up and down Hill 60 and along to the Beacon. It contained everything from a library and a gun to a household saw. Even with his broken rib Dick Dresser kept up the good work, although at the end he was in such pain that he could hardly change gears. One hopes that a couple of weeks' rest will put him right.—C. G. G.

The Aerial Tishy.

In the evening it was arranged that Mr. Fokker should show his films in the local kinema the next day, and as we also wanted to see the films he had taken at Itford Hill I took these up to Town to get them developed and arrived back with them in the evening. Here I heard that Mr. Herne had taken up one of the De Havilland monoplanes which had been converted from aileron control to warping wings since Monday. He had taken off from a gentle slope and the wings had bent, broken and folded up in the air, happily without damage to M. Herne. It gave an imitation of a sort of aerial " Tishy " having crossed its wings, and it was thought that Mr. Herne should be given a prize for the first successful flight on a flapping wing machine. [Note.—Apparently what happened was that owing to the position of the spars and the section of the wings the centres of pressure on each shifted back and forth alternately, thus producing an " automatic warp " as did the early warping-wing B.E.s of 1912 or so. The wings thus warped at increasing speeds and angles till they twisted themselves clean off.—Ed.].

In the evening we all adiourned to the local kinema, where Mr. Fokker showed all his films of the German gliding and also those taken at Itford Hill. And a very fine show they made. Mr. Fokker's lecture methods added greatly to the entertainment.

Mr. Perrin introduced the lecturer as " Monsieur Fokker " and it was thought that this would cause international representations to be made by France. However, after the meeting was over the French were so pleased that they forgot all about the " affaire."

The previous day Mr. Prosser had had an enormous biplane glider erected in a marquee next the refreshment



THE LAST SHOT.—Mr. Raynham starting from Firle Beacon for his last attempt, made after M. Maneyrol had been in the air for some minutes.

tent. When it was completed it was found that it was very much too big to get it out of the marquee and there was much speculation as to how this would be done. The problem was solved in the night by the marquee blowing down and wrecking the machine. As this was of rather crude construction it was considered by many that the blowing down of the tent was a blessing in disguise.

Friday's Events.

On Friday the wind had reduced itself to about 5 miles an hour, and it was seen that it was unlikely that there would be any soaring flights. Shortly before lunch Captain Stocken's monoplane "Phi-Phi" and Mr. Fokker's two-seater were brought along to Firle Beacon. Captain Stocken took the air first and made a successful flight of 3½ minutes in spite of the lack of wind. "Phi-Phi" apparently had a very flat gliding angle and was very controllable. With a little more wind she would have done very well indeed. Captian Stocken landed her in a field at the bottom of Firle Beacon and slightly damaged the undercarriage.

Immediately after this Mr. Olley made his first flight in the Fokker two-seater The gliding angle of this machine was not quite so flat as was that of Captain Stocken. Nevertheless he made a good flight, going away down the ridge of hills from Firle Beacon towards the sea, after which he turned round and passed over Captain Stocken's machine and landed quite close to him. When he was in the air Mr. Fokker in a great state of excitement was running up and down the side of the hill shouting out instructions to Mr. Olley which consisted mostly in telling him to "Gom 'ere" meaning that he should fly nearer to the hill. However as Mr. Olley was unable to "Gom 'ere" owing to lack of wind he did not.

After lunch a thick cloud came down on the hill and it was with the greatest difficulty that the cars steered their way back along the Ridge.

Earlier in the morning Major Maurice Wright came out on the Courtney-Wright-Sayers monoplane. They went to a gentle slope near the hangars and started off. The machine had a very fine gliding angle indeed, but unfortunately the aileron and rudder control was insufficient. As Major Wright was about to land the machine started to spin, but he put her down successfully.

Later in the afternoon Mr. Frank Courtney had the machine up and he also found that while the machine was excellent in every other way she suffered from lack of aileron control, a failing from which practically every machine in the gliding competition suffered, with the exception of M. Maneyrol's monoplane and Major Gray's craft.

In the evening a Bristol "Fighter" landed in a field near the tents and everybody went out to have a look at it. Mr. Frank Courtney, looking at it with the eye of a glidist, remarked, "Yes, it looks very nice and possibly it might work all right, but" pointing to the engine, "what's that lump of iron in the front for?"

Morning Entertainment.

On Saturday morning the conditions were ideal and it seemed that with any luck the German gliding record would be broken. Down at the sheds the trick cyclists and others with comic machines brought out their weird and wonderful craft on the hill. One machine, a curious monoplane ornithopter, designed by Mr. Waite, was hailed with great glee. The tail was merely a piece of slightly stiffened fabric which trailed along the ground, and as it was being moved about two people had to hold this tail off the ground in the manner of bridesmaids holding up a bride's train.

Mr. Cain's push bike with two wings fastened on was also taken up the hill, though, as some humourist said, he did not think that Mr. Cain would be Abel to fly. At any rate Mr. Cain dashed gallantly down the hill and hit an ant heap, which certainly did send it into the air for a yard or two, but then probably any push bike would have done the same whether it had wings or not. After a few more equally amusing attempts and after Mr. Dresser's gun had shot a stag which wandered up to the tents we started up the hill. On arrival at the top of Hill 60 we heard that Mr. Gordon England had crashed and had broken an ankle. This incident and Mr. Olley's flight in the morning and M. Maneyrol's start and S/Ldr. Gray's start the Editor, who happened by chance to be there at the time, will describe fully.

An Impressive Ending.

I think that perhaps the most impressive sight I have ever seen was the finish of M. Maneyrol's flight and S/Ldr. Gray's flight. Both these machines, which had started from Firle Beacon, were going up and down the Ridge circling round one another and apparently flying like real aeroplanes exactly where the pilots liked. S/Ldr. Gray went the further down the Ridge, going at times about 5 miles away. M. Manyerol had had far too big a start, however, for him to stand any chance of winning the prize, and when the latter had been up for some time over an hour and it was quite dark he decided to land so as to give M. Maneyrol a clear field to break the German record.

M. Maneyrol shouted down and asked for lights to be turned on, so all available cars were lined up facing across wind, lighting up a large area which gave M. Maneyrol his bearings. There was some doubt as to the exact time of the German record, some saying it was 3 hours 5 minutes, others 3 hours 10 minutes and others 3 hours 16 minutes. Therefore M. Maneyrol decided he would stay up for 3 hours 20 minutes and make quite sure.

When he had passed the 3 hours 16 minutes all the Klaxon horns hooted and everybody cheered and there was a tremendous show of excitement, and after the 3 hours 20 minutes had been passed M. Maneyrol turned round and came in from the back of the hill and made a perfect landing in absolute pitch darkness, after which we all and sundry returned to Seaford, where the *Daily Mail* gave a dinner, a description of which I will again leave to the Editor, who was present.

The Unexpected that Happens.

At the beginning of the week people were discussing with one another whether, if somebody was lucky enough to make a flight of five minutes' duration, there was any chance of the *Daily Mail* splitting the prize up among those who had put up a good show, as nobody ever dreamt of the fact that the German record would be broken, and yet the two machines which put up the best show were two of those which were considered jokes of the meeting. S/Ldr. Gray's machine only arrived at 09.00 hrs. on Saturday morning, the machine was hastily assembled and everybody who thought they knew all about gliding, including myself, went up and laughed at the machine and told the crew that they had not got a chance of controlling it, that the rudder and elevator and ailerons that were fitted to even scientifically designed machines were totally inadequate, therefore ordinary aeroplane controls would be absolutely useless. And yet this machine, which cost a total sum of 13s. 6d. to build, seemed to be by far the most controllable machine present. Altogether it proved a very instructive week and all theories were completely proved and disproved up to the hilt.

It was a merry meeting from start to finish. From the first day, on which competitors were starting from the top of the hill making long glides into the valley and laboriously returning to the top of the hill, when someone remarked that they thought that the "he descended into Lewes and the third day he rose again" sort of business was rather tedious, to the forcible abduction of Paul Bewsher while going for a duration record, the show was one long round of sheer joy.

Some of the sartorial effects were, to say the least of it, curious. Mr. Vaughan Fowler's waistcoat and Mr. Alan Bott's hat certainly brightened up the hill and it was thought that these two articles were largely responsible for the violent updraught on Firle Beacon.

On Monday morning of this week there were many



THE WINNER GETTING READY.

The Peyret tandem monoplane is here seen on the edge of the Beacon in position for starting. M. Passat is in front gauging the wind direction, M. Peyret is behind driving in the tent-peg to which the quick-release gadget was fixed.

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symptoms of the week noticeable. Mr. Raynham said that he was able to run lightly up the tube steps at Dover Street without noticing that he had done it. And an eminently respectable member of the Aero Club tried to drive his car in at the door of that spot and straight up the stairs.

Also I am told that it has been decided that instead of "miles per hour" the standard to be used in measuring the performance of gliders will be "Therms per Epoch."

Many other ex-Itfordites could be seen running about London and flying balloons over the Air Ministry to see the strength of the upward current, as done by our old friend Mr. Gust Guesser at Firle. The sooner there is another gliding week the better I shall be pleased.—G. D.

* * *

THE EDITOR RESUMES.

Friday was not an inviting day, as might have been expected by an Editor going to spend a few days in the country. The North-East wind held as strongly as ever, but the clouds were low and thick and there was no sun. As a party of us climbed Firle Beacon from the village below the clouds were already coming right down onto the Ridge.

We were just in time to see Mr. Stocken being launched for the first time over the cliff. The Aircraft Disposal Co.'s monoplane *Phi-Phi* went off splendidly but Mr. Stocken, still a novice at soaring though a wonderful pilot of aeroplanes, instead of turning at once to the right along the Ridge let her over-shoot the up-draught and so had to descend into the valley after 3 mins. 18 sec. On alighting *Phi-Phi* was lightly deteriorated, as the French say. He said afterwards that the machine was excellent on her lateral controls and elevator, but bad on her rudder, which may have accounted for his not turning to the right when he should.

A Technical Point.

It was a pity that he did not stay up longer for this machine is peculiarly interesting in that the wing is raised above the fuselage on short struts, like the latest Fokker passenger machines, whereas all the other monoplanes have their wings planked down on top of the fuselage. There is considerable argument as to which is the right thing. One or two very clever designers say that with a wing of high-lift section fixed direct onto the fuselage the air-flow to the tail-unit is upset, whereas if the wing is raised a little way the resulting gap acts like a Handley Page slot in a wing and keeps the air-flow clean along the fuselage, especially when the machine is near stalling point.

Supporters of this theory quote Mr. Fokker's change of design in favour of their argument and also bring in certain serious alleged habits of the D.H.29 monoplane and of some of the war-time biplanes which had their upper planes right down on the top of broad fuselages. The point is one which is worth careful study as it is one which is likely to become very important as aeroplane design progresses beyond putting wings onto a kind of aerial tramcar and people begin to consider fuselage design in its proper relation to the wings.

The Camera-Driven Fokker.

After Mr. Stocken the Fokker passenger-carrier, which a humorist called "the camera-driven Fokker," in recognition of the fact that it does not start till it has been adequately photographed, went off into the thickening mist flown by Mr. Olley, the well-known pilot of Handley Pages and formerly of the K.L.M. line. He also failed to catch the up-draught and only held the air for 3 m. 21 secs.

Mr. Raynham and Mr. Gordon England both had their machines on the top of the Beacon ready to start if the weather cleared, but there was nothing doing, the mist shut down thicker and thicker till one could only see 100 yards or so. It was hard to find the footpath down to Firle.

Fokker Efficiency.

Here one must really pay tribute to the high efficiency of Mr. Fokker's organisation. He arrived with a big V-engined American automobile, with enormous wheels and tyres, which made him indifferent to ruts, and Parsons' chains round the tyres which enabled his wheels to get a grip on any kind of surface. This car was fitted with a kind of cradle onto which his glider was fixed by properly designed clips.

When the glider descended into the valley Mr. and Mrs. Fokker and two or three men in the car went down roads which no other car could tackle, fixed the glider onto its cradle, and had it back again on the Ridge before the crew of a British machine could have walked to where their machine had alighted. Gradients and surface made no difference to the car's progress, and the glider seemed quite happy perched on top of everything.

The machines arrived at Asham in the first instance in pieces neatly packed in a vast cradle arrangement on top of a Ford lorry, the cradle acting as a hood over the car. On the day of their arrival, after the machines had been removed, the lorry was standing with this great cradle on top, the side-struts of the cradle standing up like the ribs of a launching-slip in a ship-yard. A local person came along, read the legend "Fokker Aeroplanes" stencilled on the cradle and remarked "Now who'd 've thought that a thing like that could ever get into the air?"

There is no getting away from the fact that apart from his skill as a pilot and as a business man Mr. Fokker is one of the most efficient organisers one has ever met. How on earth he produces and maintains the high-pressure energy of body and brain which he displays is one of the marvels of the age.

The Fokker single-seater commonly called the "Scout" had been up on top of Itford Hill in case she was wanted and on the return of the 2-seater Mr. Fokker started to take the two machines down to the tents. Itford Hill being a couple of hundred feet lower than Firle Beacon there was very little mist there. On the way down the Scout began to kite on her own account, so Mr. Fokker by way of a joke took her back to the top of the hill and glided down with a nasty side wind blowing off the spur on the east of the valley. He landed neatly in the field behind the tents, but as he wanted to land in front of his own tent he took the machine up again and came down a second time, but again missed his mark. So a third time he went up, and gave a wonderful exhibition of flying, sliding past the tents about three feet off the ground, missing the guy-ropes by inches and shouting as he skimmed past, "It is too fast, it will not come down," meanwhile waving both arms and controlling the machine by the rudders only. Then he turned round and landed just outside the refreshment tent. And that ended the amusement of the day.

Saturday's Doings.

Naturally everybody, with the true English habit of hoping for the best and preparing for the worst, expected Saturday after the Friday fog to be a flat calm with rain, but Mr. Entwistle of the Meteorological Department, who was nicknamed and will hereafter always be known as the "Gust-Guesser," prophesied otherwise and told us to expect fine weather and more east wind. He talked deep stuff about "stable distributions" and such things, but apart from all that he is certainly a wonderful weather prophet, for all his tips came off. If only he knew as much about horses as he does about weather he could make a fortune.

Saturday started "red in the morning, the shepherd's warning," but the Gust-Guesser said it would keep fine, so of course it did. So all records were broken and all form was hopelessly upset. The aerodynamic scientists went to bed that night with whirling heads which were *not* the result of the *Daily Mail's* hospitality. It may be as well to make this quite clear now that whole classes of people are so touchy on such matters. What put them in a spin was that thanks



WELL AWAY.—M. Maneyrol and the Peyret just lifting from the edge of the Beacon. It may be seen that the bunjy-ropes are still attached to the nose of the machine.

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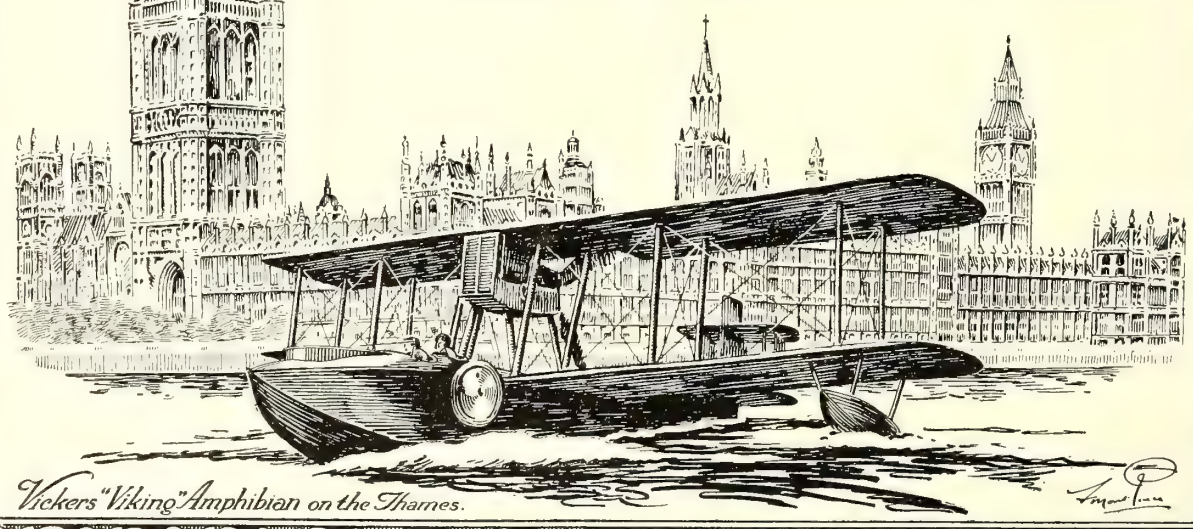
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to the weather the two machines in the competition which looked worst from the scientific point of view put up the best performances of the meeting.

The Eccentric.

The first excitement at Asham Farm was the appearance of a cycle-glider, an ordinary push-bike with wings and a tail attached. R.A.F. men pushed and pulled it up the slope of Hill 60 and held it straight as it hurtled down again. Several times the front wheel of the bicycle lifted and once at least the whole thing got off the ground. Fortunately the R.A.F. men held it or Heaven knows what would have happened. The spars whipped like fishing rods, the whole thing was out of balance and there was no control of any kind. After several similar attempts people began to tire of the amusement and went away to serious work, and later we heard that the machine had finally broken up without hurting the cyclist—which was a relief.

Outside the tent there was also a quaint beast which was commonly known as "The Bride." It had queer wings with impossible movable ends which were apparently intended to flap. And it had a two-dimension tail, having breadth and length without thickness, which lay on the ground like a bridal train and had to be supported by attendant pages whenever the thing moved. Nobody could quite fathom how the builders expected it to operate.

Also there was a single-wheeled cycle-plane affair which one missed seeing. Late in the day it was rumoured that it looped the loop at its first attempt to leave the ground and disintegrated itself. Next morning we saw a neat little bundle of bits of iron and tin and tubes and wire, about big enough to go into an ordinary perambulator, and one was assured that this was the remains of the cycle-plane.

The fan-blower air-screw machine mentioned hereinbefore did not appear in public. It was reported that the proprietor refused to bring it out unless Mr. Raynham's time of 1 hr. 53 mins. was beaten by a foreigner. He himself liked Mr. Raynham and did not propose to take the £1,000 from him. But if somebody else did so, then he proposed to go out and wrest the prize from the somebody else. Unfortunately M. Maneyrol's performance ended so late that we were deprived of what ought to have been the joy of the Meeting.

Also the promised two-man-power helicopter did not appear, greatly to the disappointment of the mere aviators present. They were frightfully anxious to see what would happen if it met a really good bump and one of the operators was jerked up and decapitated by the whirling screws. It seems to be the fate of our flying men to be deprived of their harmless little amusements.

Mr. England's Accident.

Meantime Messrs. England and Raynham had gone along to Firle Beacon. Mr. England's intention was to make a big effort for the prize as early as possible. Mr. Raynham's strategy was to gamble on his previous performance and not to start till some dangerous-looking rival went up, in which case he proposed to go up and beat him. As events turned out he made a grave strategic error, for what he should have done was to have started as early as possible and have stopped in the air as long as he was physically able to do so.

Mr. England went up about 11.00 hours and got well up over the Ridge in a wind of fully 30 m.p.h. After two or three minutes he made a turn over the top of the Ridge and apparently stalled down wind and in a down current, for the machine stuck her nose down and dived straight into the ground. Barring his own and Mr. Raynham's crews there were very few people on the Beacon at that hour, which was probably just as well. He was quickly hacked out of the wreck, and it was then found that he had a badly fractured ankle, his leg-bones sticking right out through the skin.

The Ministering Angel.

Fortunately among the spectators was Mrs. Handasyde, who was one of the best nurses in this country before her marriage and who spent most of her time during the War running hospitals, besides having had quite considerable exerience of aeroplane crashes at Brooklands before the War. If ever a woman was a born ministering angel it is "Mrs. Handy," as she is called affectionately by all the old Brooklands crowd and it was just an act of Providence that she should have been on the spot at the time. She promptly took charge of the whole business and made poor England as comfortable as was possible under the circumstances, improvising bandages and splints and instructing everybody how to make a bed and rig up a shelter for him.

It was a full hour before word could reach the St. John's Ambulance at the bottom of Hill 60 and before it could come round to Firle and up the big hill to the top. Nothing could be done to improve on Mrs. Handy's work, and in any case one doubts whether any of the ambulance people had anything like her skill and experience, so England was taken down the hill road on a stretcher, to save the bumping over the ruts in the car, and was taken to Eastbourne accompanied by his brother Squadron-Leader Tom England, R.A.F. Late at night it was learned that an operation had been performed, after three hours under chloroform, and that the surgeons hoped to save his foot, though he would certainly have a stiff ankle for the rest of his life. His brother Tom said that he hoped to get Mr. Graeme Anderson, the famous Harley Street surgeon, generally known as Doc. Anderson, R.A.F., the specialist in crushed astraguli, to come down and see the patient next day.

Pluck and Luck.

Nothing could exceed England's pluck after the crash. He was perfectly conscious and cheerful all the time, and his chief interest seemed to centre on why the accident happened. One arrived some ten minutes or so after the crash, and he was then anxious to know whether the wings of the machine had twisted in the air, as he said that he lost all aileron control. One was at any rate able to reassure him on that point, for even though the impact had flattened the nose of the machine back to the leading edge of the wings, the said wings were as solid and stiff as ever.

Everybody wishes Gordon England an early and complete recovery. Things have not been going any too well with him for the past year or so, but he has struggled gamely, and the building of this little soaring machine was a gallant effort to retrieve his fortunes. It was a splendid piece of work and it certainly had a good performance, as his numerous short flights showed. He worked hard on it all the week and made more individual flights than did any other competitor. As one of the genuine pioneers of aviation in this country he deserved a better fate and one can only wish him better luck next time.

Tragedy and comedy are always closely allied, and one incident after the crash deserves to be put on record. A Press photographer fellow, with the ghoulish instincts of his species, came along and tried to get a photograph of poor England in his little bed. Tom England told him not to do so but the man took the photograph all the same. An R.A.F. officer, an old friend of the Englands, told him to destroy the plate. As the fellow refused the officer kicked the camera out of his hands and smashed it, and as he stooped to pick it up a well-known aircraft constructor caught him bending with a foot which was once quite useful at Rugger. Thus at least one person was taught a lesson in manners, besides learning that it is not well to trifle with irritated aviators.

Mr. Olley's Big Flight.

After Mr. England's accident there was a short wait and then Mr. Olley went out on the Fokker 2-seater with F/O. Rogers, R.A.F., as passenger, the latter taking on the job quite by chance being quite unknown to Mr. Olley and just picked haphazard out of the crowd. To keep the machine



THE DREADNOUGHT.—Squadron-Leader Gray's weird mongrel, a Fokker D.VII. upper plane on a Bristol "Fighter" fuselage, is here seen leaving the edge of the Beacon on her unexpectedly fine flight.

down in the up-draught and give her extra speed Mr. Fokker seems to have loaded her up to her limit, for she carried 80 lbs. of ballast in addition to a 10 stone pilot and about a 12 stone passenger.

It was only Mr. Olley's second flight off the Beacon and he put up a wonderful show. He started the usual beat of a mile or so from the Beacon to the next hill to the South-East and sat there. Presently he got a little too far out and turned in towards the Ridge to find the up-draught again. In doing so he came too close to the face of the cup and it looked as if he would be driven into it.

He recovered cleverly though well below the top of the Ridge and was gaining height steadily when he came to a kind of little promontory which runs out a little South of the Beacon and it looked any odds on his not being able to lift over it. By lifting the machine a bit to gain height (and consequently being blown back) and then sticking her nose down to regain speed and distance from the hill face he worked up and over the promontory by as clever a piece of wind-fighting as one has ever seen. That little bit of work alone showed Mr. Olley to be one of the cleverest and brainiest aviators in this country. Finally he got well out and away from it and was shot aloft on an up-gust, where he resumed his regular patrol amid cheers.

Mr. Olley said afterwards that he enjoyed that little fight better than anything in the week, but it looked quite nasty while it was happening. Somehow one can never quite get out of one's head the idea that somewhere in the machine is a big weight—such as an engine—which will crush the glider-pilot if he hits a hillsde and rolls down it. And even as it is it seems quite possible that a roll down one of those steep-faced cups wrapped in the wreckage of a glider might be as uncomfortable and perhaps as fatal as that of the Roman General Regulus in the Carthaginian barrel with nails driven through its staves from the outside.

The flight lasted 49 minutes, which was quite a good beating for the passenger-soaring record. It is at any rate pleasant to think that a British pilot holds one soaring record, even if made on a Dutch machine. Finally Mr. Olley went too far out, lost the up-draught and came down in the valley at the foot of the Beacon. Altogether it was a very fine show indeed, and ought to put up Mr. Olley's reputation for skill and judgment, which is a most valuable asset to a pilot of commercial aeroplanes.

Later in the day Mr. Olley made a very good flight on the Fokker "Scout," starting from near Itford Hill and flying between there and Beddingham where the wind was along the Ridge instead of across it. This is really a better performance than the other, for he had only the up-draught from the spurs on which to soar instead of that caused by the main ridge. He put up a good flight of over half an hour while the great flight of the day was in progress, and so lost much of the attention which he deserved.

Some time during the day Mr. Stocken tried a flight from the neighbourhood of Beddingham and unfortunately in landing turned over and damaged his right eye. No serious harm was done, but he had to be heavily bandaged and so helped to convey to general idea that soaring is not exactly an effeminate sport.

The Record Flight.

During the long wait after Mr. Olley's passenger-record it was noticed that a gang of men were pushing a little brown machine along the South slopes of the Beacon, and people remarked casually, "Oh! That's the other Frenchman," and went on with their lunches. The machine and its attendants sat down in a hollow and nobody paid any further attention to them. Then some time after 14.00 hours somebody said that the Frenchman wanted to start, so a little crowd detached itself from the Beacon and went to see what about it.

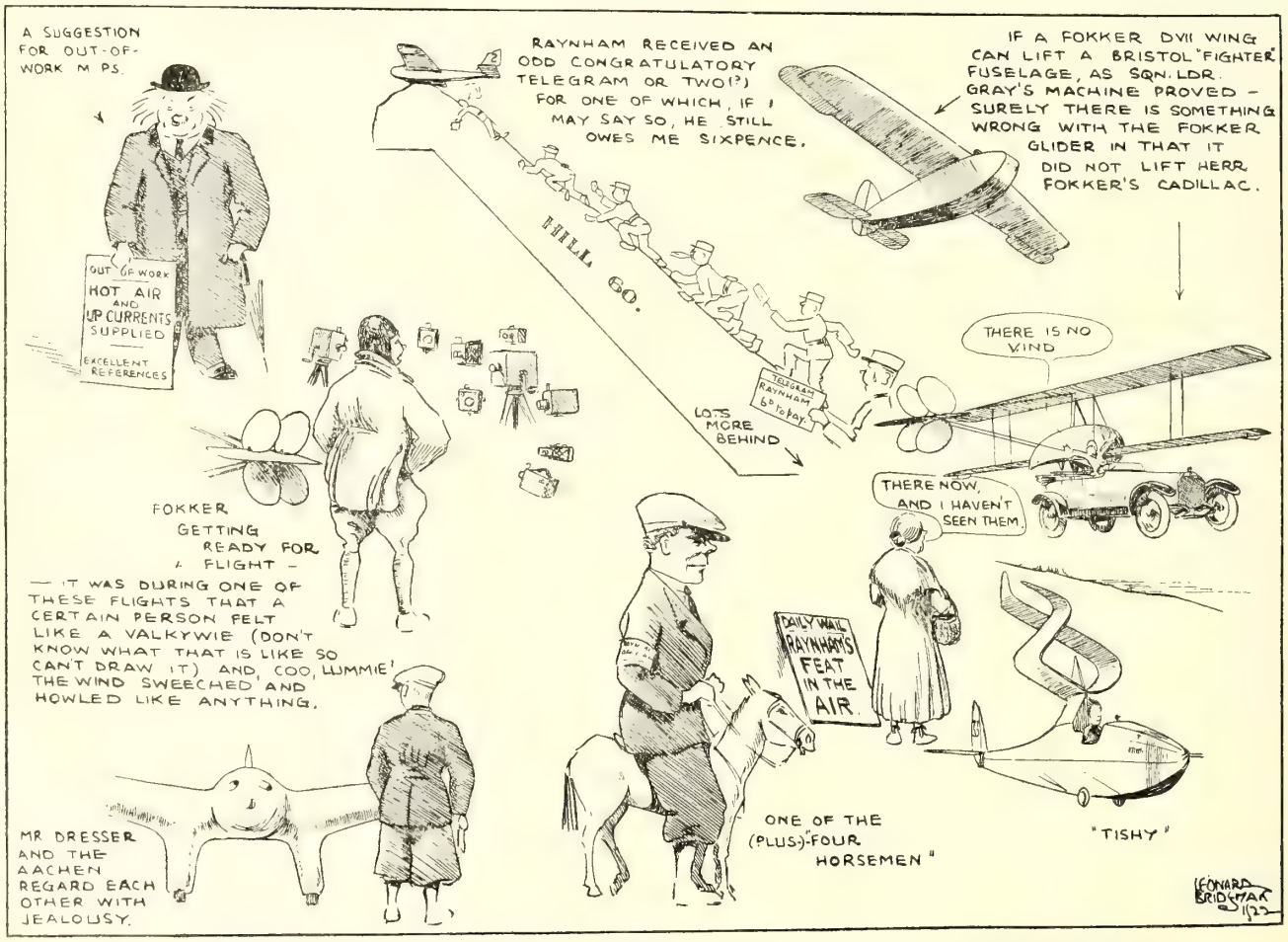
By the machine one found the excellent M. Larrouy of *Le Matin*, whom one had conveyed to the Beacon early in the day in the editorial Talbot by a wonderful road discovered by Mrs. Walter Longton, late W.R.A.F., who drives a car with all the dash and skill displayed by her husband in an aeroplane. M. Larrouy was grieved because M. Maneyrol wanted Royal Aero Club officials to officialise his start and because he wanted help to get the machine over the crest of the hill.

As soon as his needs were discovered one found him enough help to tow his machine up Mount Ararat if he had wanted it. The necessary R Ae.C. chronometrers were quickly forthcoming. And so all was made ready for the start.

The Winning Machine.

The Peyret monoplane is a most interesting little animal historically and aerodynamically and constructionally. Her history is this. M. Peyret is a foreman in the Morane-Saulnier Works. He has his own ideas about aeroplane design and they are not those of other aeroplane designers. But they are very much those of the late Samuel Pierpoint Langley, of the Smithsonian Institute, U.S.A., whom some of us believe to have been of very much greater value to aviation than ever the Wright Bros. were.

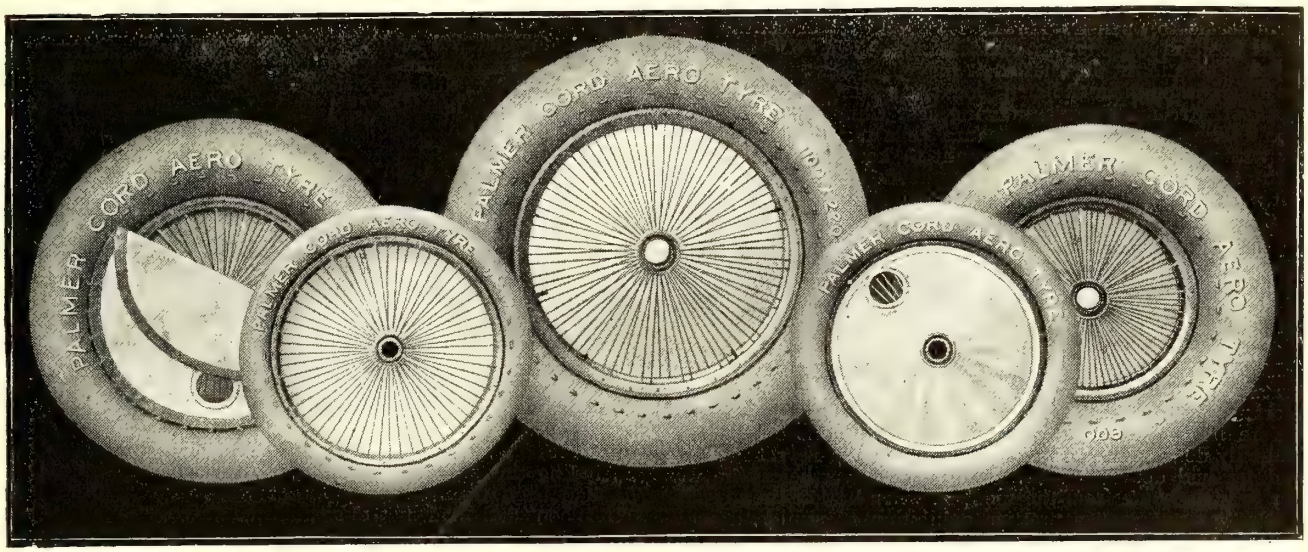
Somehow, almost entirely at his own expense one believes, M. Peyret designed a pure-bred Langley tandem-monoplane



Some Humours of the "Daily Mail" Gliding Competition, as seen by Leonard Bridgman.

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,,	138	130.	38.09	Central
575×60	21	160.	28.	Central
,,	34	150.	31.75	104/46
,,	111	150.	38.09	104/46
600×75	21	160.	28.	Central
,,	34	150.	31.75	104/46
,,	111	150.	38.09	104/46
700×75	78	178.	44.45	132/46
,,	79	178.	44.45	Central
,,	100	178.	38 09	132 46
,,	101	178.	31.75	132/46
700×100	77	178.	44.45	132/46
,,	92	185.	55.	135/50
,,	95	185.	55.	Central
700×100	96	178.	55.	132/46
,,	99	178.	38.89	132/46
,,	112	150.	38.09	Central
650×125	119	178.	55.	132/46
750×125	77	178.	44.45	132/46
,,	92	185.	55.	135/50
,,	95	185.	55.	Central
,,	96	178.	55.	132/46
,,	99	178.	38.89	132 46
,,	112	150.	38.09	Central
800×150	82	185.	55.	135/50
,,	85	185.	55.	Central
,,	36*	185.	55.	135/50
,,	40*	185.	60.32	135/50
,,	152	185.	66.67	135/50
,,	163	185.	66.67	135/50
1000×150	131	220.	66.67	Central
,,	102	185.	55.	125/60
,,	141	250.	80.	Central
,,	201	185.	60.32	125/60
1000×150	209	185.	55.	Central
,,	210	185.	60.32	Central
1000×180	148	220.	80.	Central
,,	149	185.	55.	Central
,,	155	220.	66.67	Central
900×200	107	185.	55.	Central
,,	108	185.	55.	125/60
,,	128	220.	66.67	Central
,,	137	250.	80.	Central
,,	202	85.	60.32	Central
1100×220	134	220.	66.67	Central
,,	136	250.	80.	Central
1250×250	133	250.	80.	Central
,,	154	304.8	101.6	Central
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U/N/NN.

and built it according to the excellent tradition of the Morane Works, always famous for the solidity of their constructional methods. And he fitted to it the neatest and most effective controls one has ever seen on any aeroplane.

There is no space here in which to describe these controls and anyhow the subject belongs to the purely technical section of this paper. It is hoped to deal with them fully next week. One need only say that though the machine is inherently the most stable thing one has ever seen in the air it is also by far the most controllable. Its little rigid wings are stiff enough to hold many times its weight and each of them has an aileron for its its full length, each aileron acting at will as an aileron or as an elevator. Which might possibly infringe the Fairey flap patents.

One has a kind of idea that here or hereabouts is the embryo of the design of the really big air-line passenger-carrying aeroplanes of the future, and more especially of the sea-going flying boats. The Peyret design on a big scale seems to open up immense possibilities of control and of disposition of engines and cabins which no other type appears to afford. Be that as it may it is a wonderful little machine although in the air it looks very like the flying bedstead of Mr. Bridgman's drawing last Christmas. But one would like to see its performance as a plain glider in still air without a forty-mile up-draught to keep it aloft.

In any case M. Peyret deserved the fullest congratulations not merely on having produced the winning machine but on having got right away from conventional designs and ideas and on having given all the World's aerodynamic scientists something to keep them thinking hard for some months to come. It is a very great achievement for a man who has worked his own way up in the World, and one hopes to see him attain to still greater successes in the future.

The Winning Pilot.

M. Maneyrol, the winning pilot also deserves every congratulation. He is one of the regular test pilots of the Morane firm and he has been flying since 1910 or thereabouts. Before he was catapulted over the cliff on this occasion he had only done a glide of a few seconds on the Peyret machine and he had done no soaring flights. Nevertheless he was perfectly at home from the moment when he left the ground. Never has one seen a prettier exhibition of skill and judgment, and certainly nobody has ever shown finer courage and endurance.

He went off in an ordinary cloth suit without gloves, and he had had no lunch because he had been hours helping to push the machine along the Ridge. Yet he stuck to it for nearly 3½ hours, working hard in a bitter cold wind, with icy rain and darkness for the last half hour or more. Never has there been a finer display of that grit and staying-power which a Frenchman can give when he is up against a thoroughly tough proposition. M. Maneyrol has maintained the highest traditions of the French Nation.

The Flight Itself.

M. Maneyrol went off about 14.35 hours. The preparations for his start were materially assisted by M. Passat, long famous in this country as an advocate of flapping-wing machines, who acted as interpreter beween M. Peyret and M. Maneyrol on the one hand and the bunjy crews on the other. As the preparations proceeded many people were inclined to treat the whole thing as a joke, and even serious flying people thought that the quaint little thing would fall over backwards as soon as the up-draught caught it.

The preparations were duly completed. The tail of the machine was attached to a quick-release gear fixed to a tent-peg in the ground. The bunjies were stretched taut. M. Maneyrol pulled the trigger and away went the machine, not over the edge or over backwards, but swiftly upwards and slowly forwards on a perfectly even keel. People stood and gasped.

Then the pilot took charge and began to edge crabwise along the Ridge the crowd burst into cheers. After a few turns up and down the regular beat they began to see that this was a very serious affair, for there was no mistaking the entire competence of the pilot and the controllability of the machine. It was evident that bar accidents Mr. Raynham's big performance was going to be beaten, for there were still two hours of full daylight.

Mr. Raynham's Last Effort.

So also thought Mr. Raynham himself, for he soon got off the top of the Beacon. Here he made a tactical mistake which added to his previous strategic error definitely lost him the prize. Instead of going on the same beat as M. Maneyrol and down to the South-East beyond him he went West towards Beddingham where Mr. Olley had been performing. There the wind blowing along the Ridge instead of against it soon let him down and he was definitely out of the running unless M. Maneyrol failed.

If he had gone East he would still have had the task of keeping up in the dark after M. Maneyrol had given up the fight, so perhaps after all it was for the best. One hopes to see him ere long make another effort and at any rate bring the soaring duration record to England even if there is no prize to be won in doing so.

Everybody was grieved at his defeat, for he was certainly the favourite of the crowd and the competitors alike, and his many narrow escapes of achieving a great success have won everybody's sympathy. One can only wish him a big victory in the near future.

The R.A.F. Effort.

After Mr. Raynham landed came another shock to the scientists. Along the Ridge rolled and pitched an R.A.F. tender towing behind it the quaint monoplane built by S/Ldr. Alec. Gray and F/Lt. Buchanan, R.A.F., attended by a cheery bunch of R.A.F. other ranks and followed by a big crowd. The machine is simply a scrapped Bristol "Fighter" fuselage with the upper cantilever plane of a captured D.VII. Fokker biplane clamped to the upper longerons.

It has been said that it cost 18s. 6d. As a matter of fact it cost 13s. 6d. for three-ply wood, and the rest of it was just scrap material and nothing else. But there are days and days not to mention nights of hard work in it, for the joint proprietors and various friends have built the machine with their own hands. And as the component parts have been pulled to pieces lightened and put together again there is a great deal of craftsmanship in it.

Despite all the lightening the machine complete with pilot weighed something like 500 lbs., which is pretty nearly as much as the old Bleriot monoplanes complete with engine. The method of attaching the wing to the fuselage is a trifle horrifying at first glance for the clamps holding the front spar come about 3 ins. in front of a strut fitting and hose holding the rear spar come just midway between two strut fittings, so that the weight of the pilot and fuselage and all the strains of the controls are simply taken in bend on the longerons themselves. Still these are 1¼ in. selected ash and evidently they are capable of standing up to the strain.

The Start.

There was a good deal of laughing and leg-pulling over the machine on the art of the various pilots, and everybody including the proprietors regarded it very much as a joke. It had been tried off the spur at the foot of Hill 60 that afternoon and had not only alighted without breaking anything but had shown that it was controllable, so as the proprietors remarked they thought it was now good enough to "go off the deep end" as they said which they proceeded to do.

The machine was brought onto the edge of the Beacon and the wheels, which are intended to fall off as soon as the machine leaves the ground, were untied at the points where their axle was lashed to the fuselage. The usual crews were enlisted for the bunjy ropes, which were attached to the wheel axle, and the signal was given to start. The machine ran forward, lifted slightly, the wheels fell off and shot forward with the bunjy like a stone from a catapult and the machine, deprived of the pull, sat down about 20 yards from its starting place with a dull thud which shook the Beacon. One has never before heard an aeroplane sit down so hard without breaking anything. As one Christopher Clarkson remarked, it seemed to have about as much elasticity as a gas stove.

Everybody roared with laughter and made rude remarks about flying tanks and so forth, but the proprietors of the machine and the R.A.F. mechanics merely grinned, lifted it up, put the wheels under it and rolled it back to the starting place. This time the bunjy ropes were adjusted so that the wheels could not fall off till the bunjy itself fell off. Again the towing crews got into position and again the machine started.

This time it shot off over the edge of the cliff with all the grace of a performing elephant and everybody expected it to go straight out through the up-current after which with luck it might manage to reach a clear patch of ground in the valley. To everybody's astonishment as it reached the direct up-draught the thing steadied itself, turned gently to the right, and began to edge off down the ridge as if it and the pilot had been in the habit of soaring there for years. It seemed absolutely steady, it neither pitched nor rolled but simply hung there like a suspended log, moving slowly in a south-easterly direction.

M. Maneyrol, who was then at the other side of the cup, met this apparition about half-way on his return journey. It looked rather like a badly drawn picture of a "battle-plane" of the future taken from a cheap illustrated paper. Everybody felt a trifle nervous about what was going to happen for although the French machine was apparently high enough to clear the other there was always the chance of a sudden strong gust bumping the monoplane upwards and causing a collision. Also there are up to the present no rules of the air governing the course which gliders are to take when passing. This seems to indicate a serious omission on the part of the Air Ministry in framing our air laws.

However, M. Maneyrol was fully competent to deal with

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the situation. He simply did a sharp left-hand turn, shot down-wind over the ridge behind the tail of the R.A.F. machine, pulled round into the wind and sat up in his original position over the Beacon. S/Ldr. Gray, having reached the other side of the cup, then started to edge back again. This time M. Maneyrol passed over his head and did so again on the return journey. It was evident that the lighter French machine was able to sit up higher than the English one or perhaps one should call it the Scottish one.

After that S/Ldr. Gray evidently made up his mind that they would be safer if they each had their own beats, so he worked out over the next spur and set up a beat of his own a couple of miles further out. There as it began to grow dark one left them, for frankly one funked the idea of driving a car along the ridge in the dark. The story of their landing has already been told by G. D.

A Wonderful Show.

The whole performance is certainly one of the most extraordinary things in the history of flying. S/Ldr. Gray commanded 55 Squadron in the Independent Force R.A.F. towards the end of the War and served in it as a flying officer and as a flight commander, so he is probably as well used to night flying and landing in the dark as anybody, but considering that he had never handled a glider in his life before and had never been over those appalling cups along the ridge and had not even seen anybody else do it, by reason of the fact that he only arrived at Asham that morning, and had been working on his machine ever since, it really is an astonishing performance.

What his machine would do in the way of gliding in a flat calm one cannot even guess. It would probably have a very good gliding angle and travel an enormous distance before actually hitting the ground. One had a talk to him the following morning about the performance and he seemed to think that the whole thing was very much of a joke, but one imagines that it is a form of amusement which very few people would lightly undertake. It may, however, be taken as a very fair gauge of the general moral of the Air Force.

One gathers that it is the intention of S/Ldr. Gray to go for the Soaring Duration Record at the first available opportunity, and the machine has accordingly been left in a tent at Asham pending further arrangements. One imagines however that it will be a long time before a north wind of the same quality is again available for gliding experiments. Whether the machine would actually soar in a lighter wind is quite another question. It is quite possible that it might, though it would probably take much more manœuvring to make it do so.

Anyhow, the results of further experiments with this machine will be extraordinarily interesting, as it altogether upset all the ideas of those people who think that a glider must be of the lightest possible structure. Of course, the lighter a glider is the easier it is to transport, and the less room it takes because it can be built smaller, not having so much structure weight to carry. But when one considers that the Fokker biplane put up its best performance carrying at least 360 lbs. of dead weight in the form of pilot, passenger, and ballast, one begins to see that really it is not necessary to use 24 gauge piano wire and to cut down control levers and so forth till they buckle if touched. One imagines that good wing section and good fuselage shapes and adequate controls have far more to do with the success of a glider than excessive weight cutting.

The End of a Day.

After the whole show was over and all the heroes had returned from the top of the Ridge the *Daily Mail* gave a dinner to the participants in the show at the Esplanade Hotel at Seaford with Mr. Fish of the *Mail* in the chair. M. Maneyrol, M. Peyret, and M. Larrouy, who had to see their precious little prize-winner safely stowed in her tent, came in very late and were accorded a tremendous reception by the other people who were already feeding. After dinner Mr. Fish presented the thousand pound cheque to M. Peyret, and M. Larrouy, the only one of the trio who speaks English, replied on their behalf with true French elegance translated into very good English. One thinks he was a trifle optimistic in his estimate of future soaring performances, but one agrees with him cordially that there is much to be learnt from soaring.

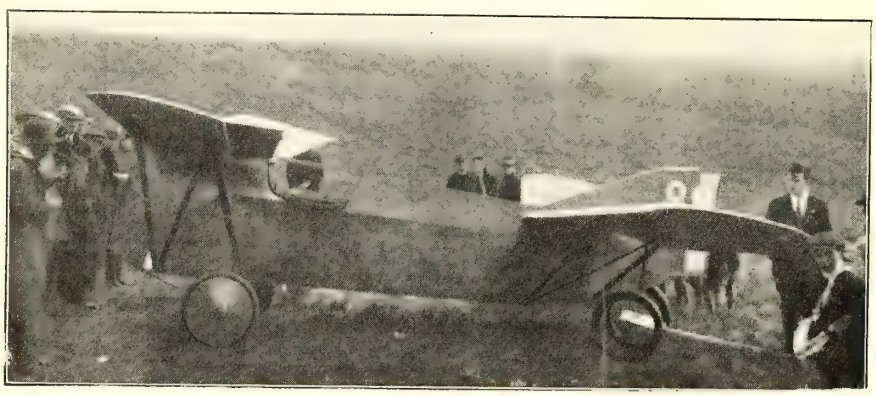
Mr. Raynham in receiving the Ogilvie prize was cheered and cheered till one really feared that something was going to break. He replied in a brief but eminently sensible little speech in which he expressed his appreciation of the way everybody had treated him and expressed his belief in the truly scientific value of gliding and soaring experiments.

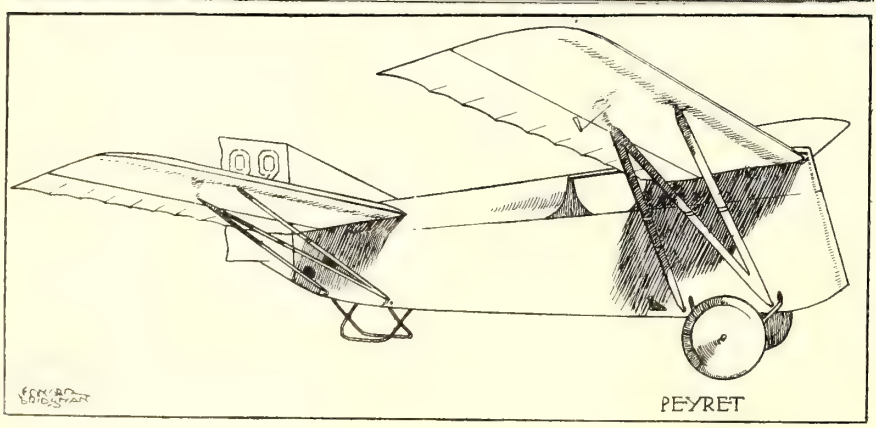
Mr. Olley in receiving the Seaford Chamber of Commerce prize loyally expressed his gratitude to Mr. Fokker for lending him the machine and to the Handley Page Company for giving him leave to fly.

Colonel Ogilvie, Colonel Bristow, Mr. Handley Page, and Colonel Darby all added to the interest of the evening by brief speeches, which unfortunately there is no room to record. After which the serious-minded people adjourned to the lounge to talk what is commonly known as deep stuff about the lessons of the week and the more frivolous members endeavoured to raise a sing-song, which rather suffered from the fact that there was only one person present in the whole company who could sing an only one who could play.

Space is lacking in which to discuss the scientific lessons of the week, but one hopes that Captain Sayers will treat the meeting from the strictly technical point of view next week, if by that time he has recovered from his labours at Asham.

—C. G. G.





ITFORD HILL RHYMES.

On his glider made for two
Tony launched across the blue—
Gave his friends a cheery wave. . . .
A little joystick marks his grave.

Freddy made a gliderette
Out of string and flanelette :
With a jib most dorsal.
I'm afraid we'll see him not
For—'tis said—his mate forgot
How to reef his for's'l.

Starting out from Itford Hill
On his helicopter,
Bertie tried to make her climb
Pedalling wildly all the time
But a gorse-bush stopt her.

* * * *

When the dust and fuss subsided,
From a little dent
They recovered Bertie's pedals,
Dickey, cuffs and service medals,
But the rest had "went."

C. C.

THE WINNING GLIDER.—Above, the little Peyret tandem monoplane is seen under the shelter of the Ridge waiting to start. Below, she is shown in detail by Mr. Bridgman. Her dimensions are :—Span 6.65 metres, Length 5.5 metres, Surface 14.5 square metres. Weight (empty) 47 kilogrammes.

F-ADAY F-ADAE
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F-^ F-ADAG
F-^ F-ADBI
F-^ F-ACMA
F-A F-ACMB
F-A F-ACMC
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F-FHI F-ACMF
F-UHM F-CMG
F-YHM F-CMI
F-ADAI F-AB
F-ADAU F-AF
F-ADBM F-CMAK
F-ADBP F-CMAJ

C.M.A. Air Lines is the British title of the Compagnie des Messageries Aériennes, whose head office is at 2, Rue Galilee, Paris. The Company was originally founded early in 1919, by M. Louis Breguet, for the transport of goods from Paris to Lille, the ground communications having been so much disturbed by the European War. This line, which was the first commercial aviation service in the world, was soon extended to Brussels and the line from Paris to Brussels has been maintained by the Company ever since.

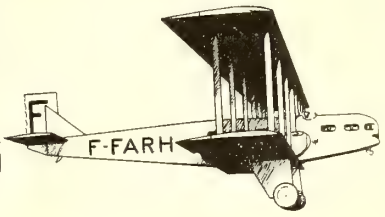
In September, 1919, a service between London and Paris was inaugurated in conjunction with Handley Page Transport, Ltd. This was originally operated three times a week each way, but later, when the two Companies separated, a daily service was commenced, which has now been extended to a thrice daily service.

By an arrangement with the Compagnie Générale Transatlantique a service is run to connect with the arrival and departure of this Company's sailings between Le Havre and New York. This is the first occasion on which a large shipping company has recognised the necessity of using commercial aviation in its transport policy.

The Company's service has now reduced the time of transit between London and Paris to two and a-half hours; between London and Le Touquet to one and a-quarter hours; between Paris and Le Touquet to one and a-quarter hours; between Paris and Brussels to two hours and between Brussels and Amsterdam to two hours. A line has been inaugurated to run direct from London to Marseilles, calling at Paris and Lyons and connecting with the Steamship Lines to India and the East. This brings Marseilles within eight hours, reach of London and Lyons within six and a-half hours.

The C.M.A. Passenger Service is maintained by twin tractor Farman Goliath Biplanes, fitted with two 300-h.p Renault Engines and with a seating capacity for 12 passengers, pilot and mechanic. This machine has a wing-span of 92 ft., a length of 49 ft. 6 in. and a height of 16 ft. Its cruising speed is 93 m.p.h The freight, mail and newspaper services utilise the smaller type of single-engined Spad and Breguet.

The Compagnie des Messageries Aériennes is an association of aircraft constructors for the study and application of Aerial Transport, and among its Board of Directors appear the well-known names of Messrs. Blériot, Breguet, Caudron, Farman, Morane, Luquet de St. Germain and Renault.—*Extract from R.A.F. Year Book.*



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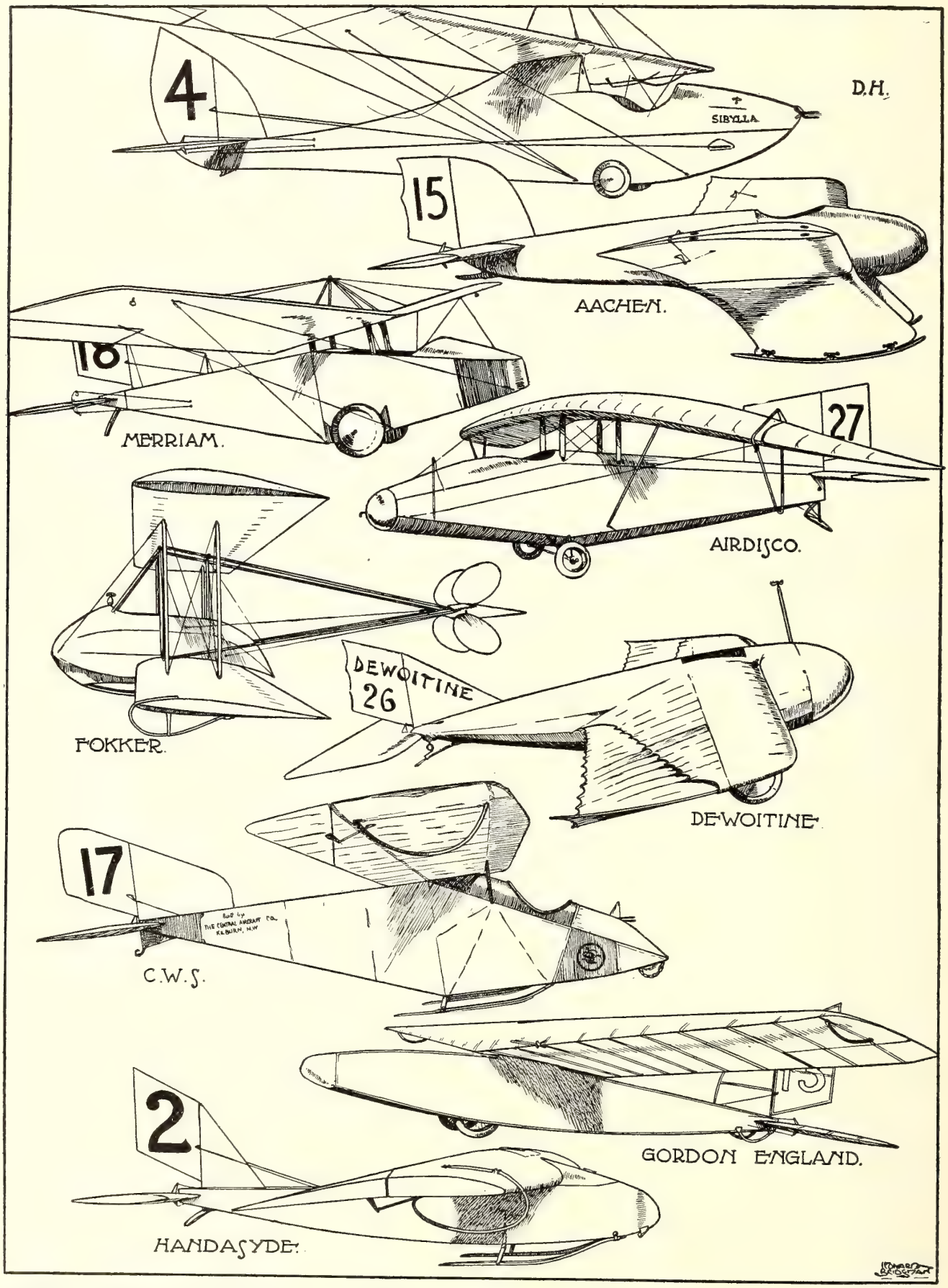
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THE COMPETITORS IN THE GLIDING COMPETITION.



Above, Mr. Bridgman has shown all the machines which flew in the "Daily Mail" £1,000 Competition, except the Fokker-Bristol which arrived late, the winning Peyret which will be found on the previous page and the Fokker "Scout."

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Appointments.

AIR MINISTRY, October 19th

Air Vice Marshal Sir J. M. Salmond, K.C.B., C.M.G., C.V.O., D.S.O., from H.Q., Inland Area, to command R.A.F., Iraq, 1/10.

Wing/Cmdr. D. L. Allen, A.F.C., from R.A.F. Depot, to Command H.Q., Constantinople Wing, 28/9.

S/Ldrs. H. J. Down, from H.Q.C.A. to H.Q., Constantinople Wing (Supernumerary), 5/10; J. Rylands, from No. 1 S.D. to H.Q., Constantinople Wing, 5/10; A. J. O. Wigmore, M.B., from No. 14 Squadron (M.E.) to Palestine Wing H.Q., 11/8; G. Blatherwick, from School of Photography to No. 1 School of T.T. (Boys) (Halton) (Supernumerary), 10/10.

F/Lts. J. S. T. Fall, D.S.C., A.F.C., from Marine and Armament Exp. Estab. to No. 56 Squadron, 1/11; J. McGowan Glen, M.C., from No. 4 Squadron to R.A.F. Depot (Supernumerary), 26/9, and from R.A.F. Depot to No. 5 F.T.S., 16/10, for duty as Adjutant; J. Duminy, from R.A.F. Depot to H.Q.C.A., 16/10; C. P. Barber, from R.A.F. Depot to Armament and Gunnery School, 16/10; A. Durston, A.F.C., from H.Q., R.A.F. (Mediterranean), to H.M.S. "Argus" (Supernumerary), 23/9; J. A. Sadler, from No. 267 Squadron (Mediterranean) to H.M.S. "Argus" (Supernumerary), 23/9; J. H. Hagon, from School of Photography to R.A.F. Base (Leuchars), 16/10; W. R. Curtis, from No. 267 Squadron (Mediterranean) to H.M.S. "Argus" (Supernumerary), 23/9; J. K. Ritchie Landells, M.B., from No. 2 Squadron (Ireland) to H.Q. (No. 12 Wing, Ireland), 4/10; T. McClurkin, M.B., from No. 2 Squadron to Research Laboratory and M.O.S. of I., 11/10; P. Huskinson, M.C., from Boys' Wing (Cranwell) to R.A.F. Cadet College, 9/10; A. W. Mylne, from R.A.F. Cadet College (Flying Wing) to R.A.F. Cadet College (Ground Wing), 9/10; R. B. Waite, M.B.E., from H.Q.I.A. Area to Air Ministry (Director of Personnel), 9/10; A. W. Symington, M.C., from R.A.F. Depot to Half-Pay List, 1/10; N. P. Dixon, A.F.C., from R.A.F. Cadet College (Flying Wing) to Boys' Wing (Cranwell), 9/10; V. A. Albrecht, O.B.E., M.C., from Army (Manchester Regt.) to No. 4 F.T.S. (M.E.), on appointment to Temporary Commission in the R.A.F. on being seconded from the Army, 25/9; O. R. Gayford, from No. 1 F.T.S. to H.Q., Constantinople, for duty as Adjutant, 28/9; E. A. Fawcus, from No. 1 School of T.T. (Boys) (Halton) to School of Photography (Supernumerary), 25/9; G. Bowen, from Iraq Group H.Q. to Aircraft Park (M.E.A.), 1/11; F. W. Trott, O.B.E., M.C., from No. 24 Squadron to H.Q., Constantinople Wing, 28/9; E. V. Longinotto, A.F.C., from Air Ministry (Director of Personnel) to R.A.F. Depot (Supernumerary), 9/10; A. W. Turner, from R.A.F. Depot to H.Q., Constantinople Wing, 28/9.

PERSONAL NOTICES.

DEMISE.

FOORD.—On October 18th, at the Central R.A.F. Hospital, Finchley, F/O. Basil Arthur Foord, R.A.F., M.C., D.F.C., youngest and last surviving son of the late J. A. Foord, of Fort Jameson, Northern Rhodesia, aged 25 years

RICKARDS.—On October 15th, Major Gilbert Braithwaite Rickards, M.C., formerly Royal Munster Fusiliers, late R.F.C.

ENGAGEMENTS.

HANMER—SPENS.—The engagement is announced, and the marriage will shortly take place, between F/Lt. Robert Hugh Hanmer, M.C., R.A.F., eldest son of the Rev. Hugh and Mrs. Hanmer, The Rectory, Whitchurch, Salop, and Mary Helen, youngest daughter of Mr. and Mrs. Nathaniel Spens, Palace Gate Mansions, 29, Palace Gate, W.8.

HENDERSON—DEUCHAR.—The engagement is announced between F/Lt. Thomas Henderson, R.A.F., eldest son of Mrs H. Henderson, of Tynemouth, and Edith Leslie, daughter of Mrs. Alexander Deuchar, lately of The Minories, Newcastle.

BIRTHS.

ALLEN.—On October 14th, at the Nursing Home, Beverley Road, Colchester, Joyce, wife of Rev C. A. B. Allen, Chaplain, R.A.F., of a son.

MATHEW.—On October 14th, at 34, Hilldrop Crescent, N.7, to F/Lt. and Mrs. Cecil G. Mathew—a son.

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ANALYSIS OF FIGURES

Week ending Oct. 15th, 1922:—

Number of trips made during week.—I.L. 12, H.P. 14, D.A. 19, M.A. 28, G.E. 12, K.L. 12, D.H. 2, P.O. 2

Number of passengers carried.—I.L. 76, H.P. 121, D.A. 20, M.A. 18, G.E. 46, K.L. 23, D.H. 1.

Total number of trips by British machines: 47, carrying 218 passengers.

Total number of trips by foreign machines: 54, carrying 87 passengers.

Trips per day.—Monday, 18; Tuesday, 15; Wednesday, 16; Thursday, 19; Friday, 15; Saturday, 14; Sunday, 1.

STATISTICS.

Machines, 101; Passengers, 305; Crews, 103; Total Personnel, 408.

Corresponding week last year:—

Machines, 80; Passengers, 214; Crews, 109; Total Personnel, 323.

Corresponding week, 1920:

Machines, 125; Passengers, 196; Crews, 143; Total Personnel, 339.

ANALYSIS OF FIGURES.

Week ending Oct. 22nd, 1922:

Number of trips made during week.—I.L. 9, H.P. 12, D.A. 15, M.A. 24, G.E. 11, K.L. 12, D.H. 3, P.O. 5.

Number of passengers carried.—I.L. 48, H.P. 113, D.A. 23, M.A. 56, G.E. 23, K.L. 19, D.H. 3.

Total number of trips by British machines: 39, carrying 187 passengers.

Total number of trips by foreign machines: 50, carrying 78 passengers.

Trips per day.—Monday, 22; Tuesday, 12; Wednesday, 17, Thursday, 15; Friday, 2; Saturday, 17; Sunday, 4.

STATISTICS.

Machines, 89; Passengers, 261; Crews, 151, Total Personnel, 412.

Corresponding week last year:

Machines, 66; Passengers, 226; Crews, 87, Total Personnel, 313.

Corresponding week, 1920:—

Machines, 90; Passengers, 160; Crews, 104; Total Personnel, 264.



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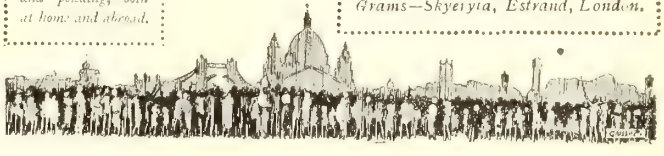
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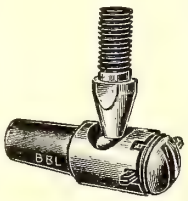
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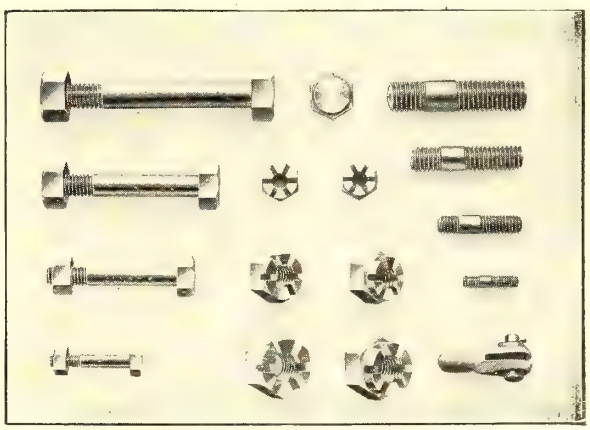


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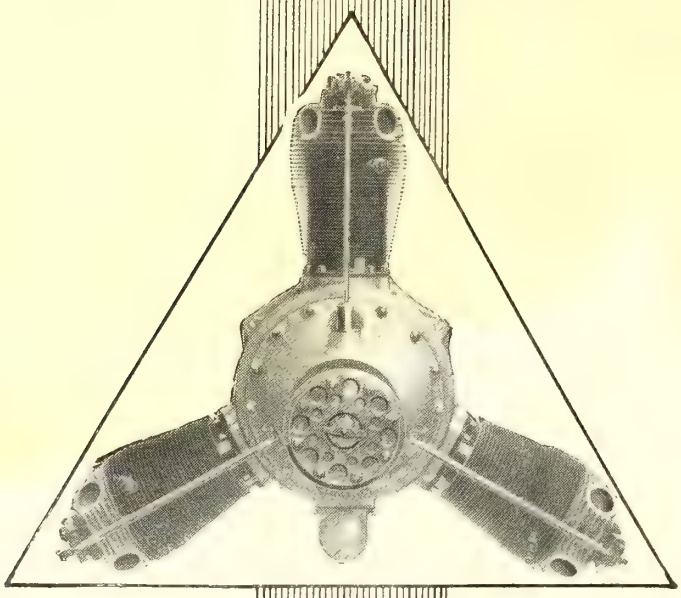
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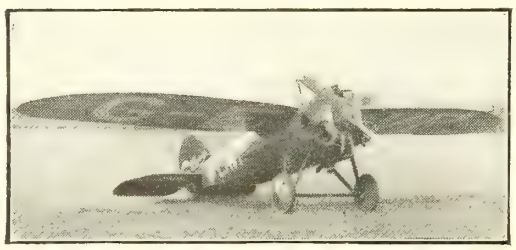


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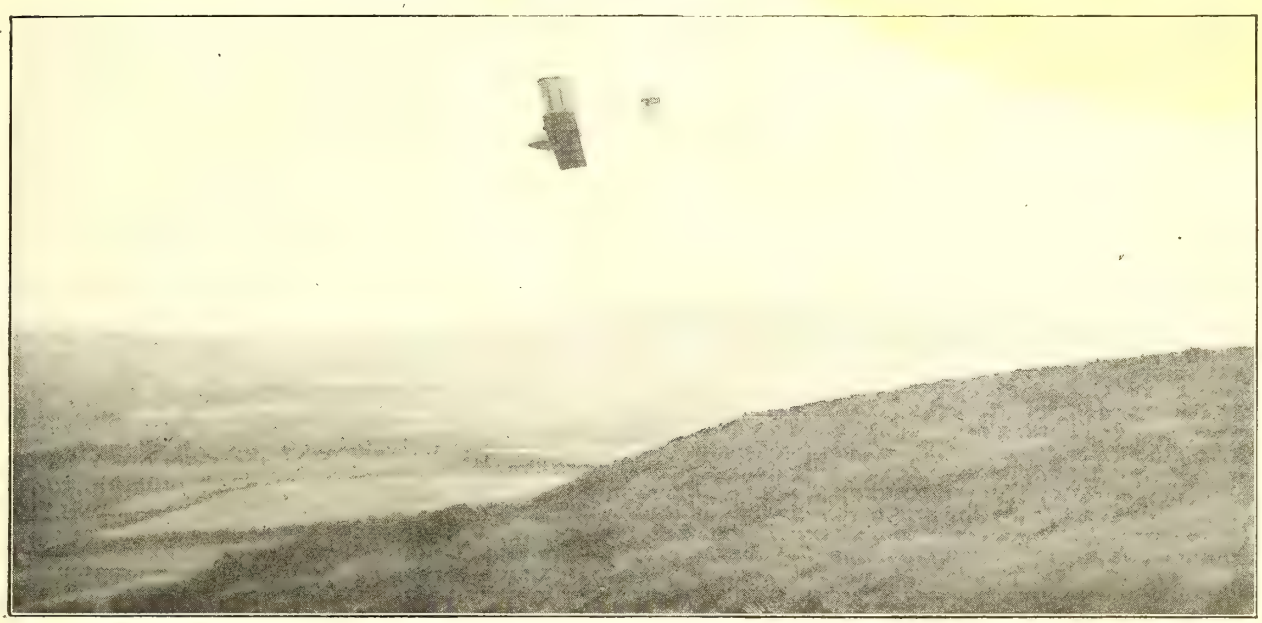
THE AEROPLANE

Edited by C. Gibson

WEDNESDAY, NOV. 1, 1922.

Vol. XXIII. No. 18. SIXPENCE WEEKLY. [Registered at the G.P.O. as a Newspaper.]

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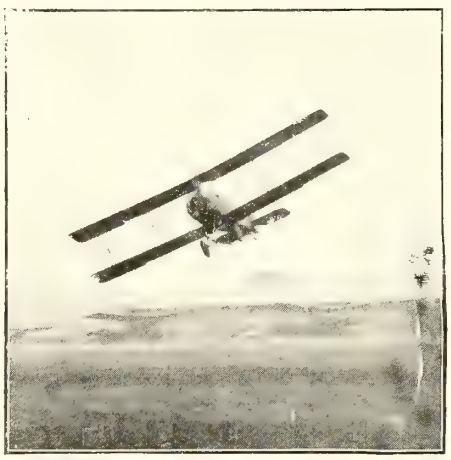


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ON THE POLITICAL SITUATION.

Every now and then some reader or other of this paper hints more or less forcibly that the job of a trade or technical paper is to attend to its trade or technical affairs and not to bother about politics. One submits that this is an entirely erroneous view of the functions of a trade paper, for any business man will admit and will sometimes declaim with emphasis that the present rotten state of trade in this country is entirely due to our politicians who have been allowed to produce a state of industrial chaos because they happen to be politicians and not statesmen. Obviously, if every trade and technical paper in this country took the active interest which it should do in politics the state of the country would be very much better. Each trade and technical paper in its own way carries quite a considerable amount of weight in its own circle of readers and practically all tradesmen or business men, who after all represent the best of the voters in this country, read a trade or technical paper of some kind.

As it is the free and independent voter getting no political advice from his trade paper takes his politics from his daily paper, which is generally edited by a man who has an axe to grind politically or else is simply and frankly paid by somebody in or out of power to take a certain political line. The editor of a trade paper may at any rate be relied upon to take the particular political view which is best for his particular trade.

THE AEROPLANE at all times can claim that in this matter it is not as other trade papers are. From its earliest days it has been frankly, not to say frantically, political, though it can claim to have been fairly impartial as to which party it has attacked from time to time. It has so happened that Liberal politicians have as a rule been at the War Office and Admiralty during the last 10 or 11 years, and at the Air Ministry for the last five, and therefore the attacks in this paper have necessarily been delivered as a rule against Liberal politicians. But that has been merely because the politicians did not know their business and not in the least because they were Liberals. Whatever the party or particular politician may be has made and will make no difference to THE AEROPLANE, and one proposes to continue one's political work with one aim and object only in view, namely, the aggrandisement of the British Empire and the progress of British aviation.

Our Next Air Minister.

The great political point at issue at the moment is who is to be our next Air Minister. When this paper went to press last week it was actually announced by several papers that Lord Londonderry was to be the official in question. Now it is equally definitely announced that he is not to be. No official announcement has been made on the subject and the opinions of various papers vary all the way between saying that minor Ministers will not be appointed until after the general election and the statement that the Air Ministry is to be abolished along with the R.A.F. and that so there is no need to make such an appointment at the moment.

It may be taken for granted that there is no truth in the idea that the Air Ministry and the R.A.F. are to be abolished. When a definite principle is laid down by one Government it is never immediately upset by the following Government, and it is now accepted by everybody that the R.A.F. is to continue to exist. Therefore what is of the most immediate interest is the actual personality of the next Air Minister.

It is extremely hard to imagine who, barring Lord Londonderry, could be as good in the office as Captain Guest or Lord Gorell. It is easier to think of those who would not do.

The Impossible.

First and foremost of these one would place one Member of Parliament whose name has been mentioned as the probable Air Minister by several papers, that is, Major Sir John Baird.

One has never had the pleasure of meeting Major Baird and beyond the fact that in his personal and private life he is a model of all the virtues one has no knowledge of him. All one knows about him is his political record at the time when he was Under-Secretary of State for War and was mishandling aeronautical affairs in Parliament. In that position he was the most incompetent and at the same time irritatingly would-be clever politician whom one has ever encountered, with the possible exception of Mr. Tennant.

Major Baird knew nothing about aviation and never gave the slightest indication of being threatened with enough intelligence to appreciate the importance of aviation. He never gave a straight answer to a question if he could possibly reply with a quibble, he always lost his temper and became politically offensive when heckled with well-placed supplementary questions. Whether the obvious and futile attempts at trickiness in his replies to questions were of his own devising or whether knowing nothing of his subject he merely read out the replies prepared for him by incompetent and evasive officials of his department one has not the slightest idea.

All that one does know is that where a straight answer to a straight question would have been highly beneficial to the R.F.C. of the period and to Major Baird's political reputation he did invariably give a crooked answer. Thus unfortunately for him everybody concerned with aviation is convinced that, politically speaking, a corkscrew would appear to be a Euclidian straight line compared with Major Baird.

Whatever may have been the facts it was at any rate perfectly obvious that Major Baird is not mentally competent to handle the affairs of the Air Ministry, and if Mr. Bonar Law should be so extraordinarily unwise as to appoint Major Baird he may depend upon his nominee being met with uncompromising hostility from all concerned with aviation. It is true that as a matter of self-interest people in the Air Ministry and people in the trade may camouflage their hostility and that very possibly this paper alone will be sufficiently outspoken to expose Major Baird's unfitness for that particular office. But it is now a recognised fact that THE AEROPLANE does represent accurately the feelings of the aeronautical community, and political people may take the foregoing remarks as indicating that feeling.

Another Impossible.

It has also been suggested that Major-General Sir Frederick Sykes, who is standing for Parliament in what is believed to be a safe constituency at Sheffield, may be appointed Air Minister. Frankly one believes that such an appointment is impossible. It must first be recognised that Sir Frederick Sykes is Mr. Bonar Law's son-in-law, and though Mr. Lloyd George has reduced British politics to a fairly low ebb one has hopes that Mr. Bonar Law will go some little way towards re-establishing the reputation of British politics as being on a slightly higher level at any rate than politics are in any other nation. That being so it would be practically impossible for him to lay himself open to attack by such an example of nepotism even if Sir Frederick Sykes happened to be the one person in all the world best fitted to be Air Minister.

As a matter of fact, Sir Frederick Sykes would be about the worst possible Air Minister. The one thing we need at the moment is an Air Minister who is free from all prejudices and who is capable of giving a quick decision and who is possessed of driving power. On all three counts Sir Frederick Sykes is impossible. Personally he is a singularly charming man, he is physically very brave and he has a number of good qualities, but his régime as Controller-General of Civil Aviation showed that it would be nothing short of a disaster for him ever again to have any official position in connection with aviation or to have any position in which he could bring influence to bear on any official of the Air Ministry.

A good many years ago during the War one remarked that Mr. Bonar Law had the mental make-up of a Glasgow ironmonger. Events have proved that the description was perhaps even more apt than one thought at the time, and the mere truth of it inclines one to have a good deal of confidence in Mr. Bonar Law as Premier at the present juncture. What the nation needs is a re-establishment of its trade. And certainly a Glasgow ironmonger with his limited outlook and with his mental outfit divided into a number of neat little pigeon-holes is much more likely to restore prosperity to trade than is a ranting Welsh Revivalist like Mr. Lloyd George. Your good ironmonger knows his stock-in-trade by heart and depends for his local reputation on the quality of his stock. Therefore one has not much fear that Mr. Bonar Law will hand Sir John Baird or Sir Frederick Sykes across his political counter to the British public.—C. G. G.

ON THE ROYAL AERO CLUB DINNER.

On October 26th the Royal Aero Club held a Dinner at the Savoy to celebrate the success of the King's Cup Race, and to congratulate the winner of the Schneider Trophy, the representative of the Royal Aero Club. The Dinner was less formal than usual, the speeches were brief and to the point and the whole affair was distinctly cheery. It is to be hoped that excuses will be found for similar functions before the Winter season ends. Possibly something might be done in connection with gliding, especially if anybody manages to raise the World's soaring record before the end of the year.

The Chair was taken by Lieut.-Col. J. T. C. Moore-Brabazon, M.C., M.P., Chairman of the Committee of the Royal Aero Club, who explained that actually the President of the Club, the Duke of Atholl, ought to have been in his place but for the fact that he was in Scotland. He knew that the Duke was in Scotland because he had seen him reeling there a few days previously, and he hastened to explain that by reeling he meant dancing reels.

The Chairman then extended a welcome to the members of the International Aeronautical Congress who were guests for the evening. He explained that the Aero Club started as a lighter-than-air club and though it was now chiefly devoted to heavier-than-air matters there was no need for the speeches to be heavier still. Further, a superfluity of words was due before long in the course of the elections so he besought speakers to be brief. His own duty was very pleasant, namely, to give away cups that did not belong to him.

Before doing so he must refer en passant to gliding. He wished to give every credit to the Secretary of the Club, Mr. Harold Perrin, to whom he referred as a dynamic force, with special reference to the fact that he had organised with a warning of a few weeks a completely successful meeting at which all World's records had been broken. He specially thanked Colonel Darby and the Gliding Committee for their work. He congratulated M. Maneyrol and he said how proud they were of the success of the British representatives, Raynham, Gray and Olley. England, he said, was doing very well in aviation.

He then disclosed the astonishing fact that General Brancker was leading a double life. He explained that not only was he Director of Civil Aviation but that he was also Chairman of the Racing Committee of the Royal Aero Club. After which he publicly thanked the various people who were in charge of the different controls during the King's Cup Race and added in the list of those to be thanked Mr. Robertson of the Department of Information at the Air Ministry and the handicappers of the King's Cup Race, Lieut.-Col. Bristow and Captain Goodman Crouch, who as he rightly said achieved marvellous results.

Col. Moore-Brabazon then presented the King's Cup formally to Sir Samuel Instone and afterwards performed a pleasant little ceremony which was entirely unexpected by almost everybody present namely the presentation of a mementorial mug to each of the finishers in the race who were actually present. These included Captain Cockerell, Mr. Piercey, F/Lt. Longton, F/O. Hamilton and Mr. Raynham. Each received well deserved applause, but the cheers which greeted Mr. Raynham surpassed anything which one has heard at such a decorous gathering. Evidently the popularity of Mr. Raynham among the aeronautical community grows in proportion to his ill-luck.

Sir Samuel Instone, in acknowledgment, said that they had to thank first General Brancker for originating the King's Cup Race and secondly His Majesty the King for presenting the Cup. (The phrase "*Ego et Rex meus*" was one believes coined by the late Cardinal Wolsey. The "*Ille et Rex illius*" variant is new. It would seem to confer a certain distinction on General Brancker.) Sir Samuel then proceeded to pay a glowing tribute to the various employees of the Instone Air Line each of whom played a necessary part in the winning of the King's Cup.

Mr. Barnard, the chief pilot of the Instone Air Line, modestly thanked the other employees of the firm who had helped him to victory, pointing out that the men who rigged his machine and who tuned his engine were just as necessary in winning the race as he was himself.

Mr. Raynham, who was again received with prolonged cheers, referring to the King's Cup Race and the Schneider Trophy contest remarked that they seemed to have occurred a long time in the past, he might almost say in the days when engines were used. As a British pilot he expressed his gratitude to Captain Biard and Mr. Hubert Scott-Paine for winning the Schneider Trophy, if only because it would save everybody the trouble of going halfway across Europe to see the next Schneider race. Referring back to his previous remark he said that engines were really quite necessary, aeroplanes would be so badly out of balance without them. He wished to pay a tribute to the "Viper" engine in his own machine which was second in the King's Cup Race. It ran wonderfully, sometimes without water, always without Shell spirit and always well over its permissible revolutions per minute, so he wondered why it held together.

General Brancker, presenting a handsome salver to Capt Biard, referred to the fact that we had always been a nation of sea men and that we were in future to be a nation of air men naturally therefore we should be pre-eminent in sea-going aircraft. Therefore it was very satisfactory that the Schneider Trophy should have been won by the Supermarine firm. Aerially our geographical position was different from that which we held as a Naval Power. At sea we were on the road to everywhere in the air we were at the end of the road. But our widely distributed Overseas Dominions demanded that we should organise the navigation of the air all over the World.

So far as Civil Aviation was concerned the flying boat had never yet had a chance but it would ultimately come into its own. He congratulated Mr. Scott-Paine of the Supermarine Company, Mr. Vane of the Napier Company and Captain Biard on their success, and he added to his congratulations the General Steam Navigation Company who alone made it possible to get the Supermarine boat out to Naples in time for the race and did it free of charge.

Mr. Hubert Scott-Paine said that the Supermarine Company's interest in the Schneider Trophy dated to 1919 when they built their first defender. This year they had approached various sporting people in the hopes of getting them to put up the last thousand pounds necessary to enable them to compete for the trophy, but, he added amid laughter, they ultimately had to put up the money themselves.

He told how the General Steam Navigation Company had diverted one of their ships from its course in order to deliver their boat in time at Naples. And he described the magnificent fight which Captain Biard put up in the race itself when, although suffering from cramp in a strained back muscle, he flew two extra laps of the course in order to make perfectly sure of covering the full distance in case he might have made any mistake at one of the turning points.

Mr. H. T. Vane of the Napier Company described how he had formed a coalition with the Supermarine Company. Shareholders of limited companies objected to money being used for sporting purposes and he was grateful to the Press which had given the firm so much publicity as to justify their expenditure. He pointed out how different from our method was that of the French Government who bought racing machines after a competition whether they had won or lost. Mr. Vane might have added that the United States Army and Navy Air Service do still better in that at the Detroit Meeting they actually had thirty-two machines of approved specifications entered for the big races. The U.S. Army alone had nine machines specially built for the Pulitzer Trophy Race and Navy had five.

Capt. Biard, always the most modest of men, thanked everybody concerned in making it possible for him to win the race and thanked everybody else for thanking him for winning it.

Lieut.-Col. Frank McClean, A.F.C., in proposing the health of the guests, lamented the fact that he had originally been put down as a guest himself but that for lack of somebody else to do what he was doing Mr. Perrin had made him pay a guinea for his dinner and make a speech in addition. He referred to the useful work done by the International Congress on aerial navigation and pointed out how necessary it was that there should be proper rules for navigating the air.

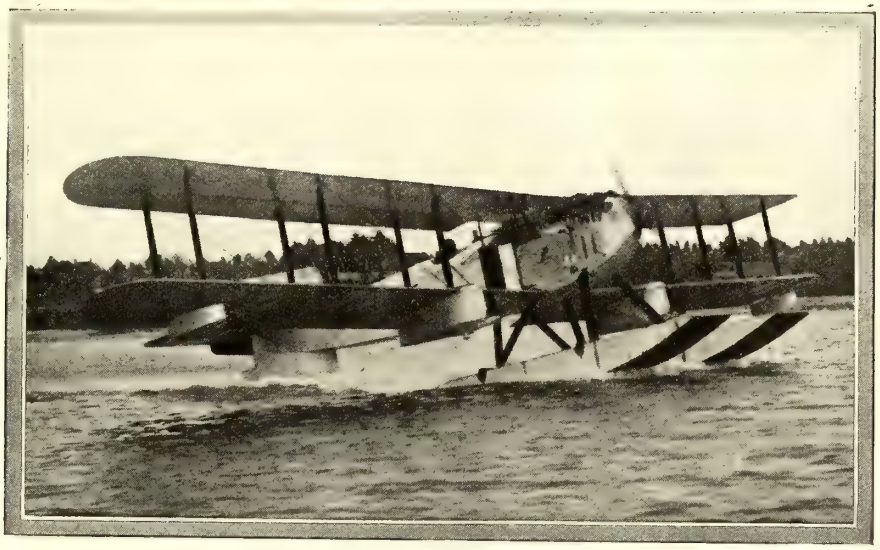
He said that we had not even as yet proper international rules for the road or even for the footpath. One had only to walk along Bond Street or Oxford Street to see how the feminine members of the community made for themselves the rule of the shop window while the mere males had to obey the rule of the gutter. He said that the first rules of the air were made by the Aero Club (before it became Royal) but that he had no regret that the old functions of the club had now been taken over by the International Convention.

The Lord Provost of Glasgow replying for the guests described Glasgow's share in the King's Cup Race with pawky Scottish humour.

Monsieur Flandin, President of the French Aero Club, in replying for the delegates at the International Congress delivered one of his usual elegant and all too brief orations in his own language, remarking that as the toast had been proposed in English and as they had had the first response in Scotch he thought that his reply had better be in French.

After that Sir Henry White Smith proposed the health of the Chairman in a few well chosen words worthy of their object and Colonel Brabazon in returning thanks intimated that his chief joy in life was to do anything that he could for the Royal Aero Club. And after that everybody went off to spend the evening as best pleased them, having due regard to the fact that the Savoy has an excellent band and a wonderful floor.—C. G. G.

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THE SECOND MEETING OF THE INTERNATIONAL COMMISSION FOR AIR NAVIGATION.

The 2nd meeting of the International Commission for Air Navigation was held at 5, Old Palace Yard, Westminster, from the 25th to the 28th October under the presidency of Major-Gen. Sir Sefton Brancker.

On the 25th the members of the commission were entertained to dinner at Lancaster House by the former First Commissioner of Works on behalf of the late Government.

On the 26th the delegates were entertained to lunch by the Society of British Aircraft Constructors, with Mr. C. R. Fairey in the chair and in the evening they were the guests of the Royal Aero Club.

On the 27th the first public session was held, representatives from the following countries being present: Belgium, Bolivia, the British Empire, France, Greece, Japan, Persia, Portugal, the Kingdom of the Serbs, Croats and Slovenes, and Siam. A representative of the General Secretariat of the League of Nations was also present, having been appointed to attend in order to convey information to the League.

A report from the Medical Sub-Committee recommended that no pilot should be engaged before attaining the age of 19 or after attaining the age of 45.

The Commission next considered the report of a sub-committee on the use of wireless on aircraft, and agreed, as a general principle, that all aircraft engaged in public transport must carry wireless. At present this provision is applied only to aircraft able to carry ten or more persons. Aircraft carrying fewer than ten persons, and flying more than 100 miles over land without landing or more than 15 miles over sea, must carry wireless apparatus within two years.

The Belgian delegate proposed that with regard to Article 34, which relates to the distribution of votes on the International Commission for Air Navigation, each contracting State should only have one vote, that any amendment must be carried by a three-fourths majority, and that no amendment be carried without the consent of at least three of the following States: Great Britain, U.S.A., France, Italy and Japan. This matter was referred to the consideration of each individual Government prior to the holding of the next Assembly.

A new form of wording of Article 5 of the Convention was adopted as follows: "No contracting State shall, except by a temporary authorisation, permit the flight above its territory of any aircraft which does not possess the nationality of a contracting State, unless it has concluded a special convention with the State in which the aircraft is registered. The stipulations of such special convention must not infringe the rights of the contracting parties of the present Convention, and must conform to the rules laid down by the said Convention and its annexes. Such special Convention shall be communicated to the International Commission for Air Navigation, which will bring it to the knowledge of the other contracting States.

The Chairman remarked that this article would make it easier for other countries to enter the Convention.

The French Delegation submitted a note in which they emphasised the desirability of the nationality letter being the same for aircraft registration as for wireless calls, and suggested that those countries to which no aircraft registration letter under the Air Convention should now be requested to adopt the same letters for aircraft registration as for international wireless calls.

Lieut.-Col. Blandy, Controller of Communications at the Air Ministry, was appointed Reporter to prepare a list of suggested letters for those countries to which a letter had not already been allotted.

The Commission then broke up, having decided that the next meeting, which will be the third, shall be held in Brussels in February, 1923.

JAPANESE HONOURS.

The following honours have been awarded to those who served with the British mission in Japan: Captain the Master of Sempill, the commanding officer, was given the third class Order of the Rising Sun. Commander Meares was given the third class Order of the Sacred Treasure. The other decorations follow:

Lieutenant-Commanders Fowler, Atkinson, Eldridge, Brackley, Smith and Orde-Lees, fourth class Order of the Rising Sun.

Lieutenants Pollard, Bryan, Loton and Vaughan-Fowler and Surgeon-Lieutenant Jones, fifth class Order of the Rising Sun.

Sub-Lieutenants Brutnell, Sheret, Hatfield, Landamore and Volkert, sixth class Order of the Rising Sun.

Warrant Officers Crisp, Satchell, Bond, Williams, Farwaker, Redmond, Adams, Manton, Hunter, Ellis, Ford and Sherras, sixth class Order of the Sacred Treasure.

R.A.F. APPOINTMENTS.

AIR MINISTRY, October 19th.

S/Ldrs. A. H. S. Steele-Perkins, O.B.E., from Record Office to Aircraft Depot, Egypt (M.E.A.), 13/10; O. T. Boyd, O.B.E., M.C., A.F.C., from Air Ministry (Director of Operations and Intelligence) to command No. 24 Squadron, 23/10; E. P. Punch, from Aeroplane Exper. Estab. to No. 7 Group H.Q., 26/10.

F/Lts. H. G. Crowe, M.C., from No. 39 Squadron to School of Photography (Supernumerary), 19/10; E. W. Longden, from Armament and Gunnery School to R.A.F. Depot, 19/10; C. Y. Roberts, from Research Laboratory and M.O.S.I. to Aeroplane Exper. Estab., 23/10; C. P. O. Bartlett, D.S.C., from No. 30 Squadron (Iraq) to R.A.F. Depot (Supernumerary), 20/8; J. S. Goggin, from R.A.F. Base, Gosport, to Palestine Wing H.Q., 23/10; B. F. Beatson, D.T.M., from Indian Medical Service to Research Laboratory and M.O.S.I., on appointment to Temporary Commission in the R.A.F. on being seconded for two years from the Indian Medical Service, 13/10; J. Duminy. The notification which appeared in R.A.F. Intelligence, dated 19/10, is hereby cancelled.

THE R. M. GROVES MEMORIAL.

The awards in the 1922 competition for the R. M. Groves Memorial Essay on "A Forecast of Aerial Development," open to all members of the R.A.F., are as follows:—

First Prize (£30 and books).—S/Ldr. A. A. Walser, M.C., D.F.C., Air Ministry.

Second Prize (£20 and books).—S/Ldr. B. E. Smythies, D.F.C., R.A.F. Staff College, Andover.

Third Prize (£10 and books).—Wing/Cmdr. J. T. Babington, D.S.O., H.Q., No. 7 Group, Andover.

A special prize of £10 is also given for the best imaginative resumé on "Aviation in the next World War." On this occasion the prize has been awarded to Wing/Cmdr. J. T. Babington, D.S.O., winner of the third prize.

A FALSE REPORT.

A report appeared in the *Westminster Gazette* last week stating that there was pending an amalgamation between the three British Air Lines.

One understands this is entirely untrue although it is probable that the three firms may come to an arrangement to pool certain items such as advertising and booking expenses in order to reduce overhead charges.

A NEW GLIDING PRIZE.

A new prize of one thousand guineas has been offered by Mr. Gordon Selfridge for the first flight by a glider without an engine of any sort, which flight, measured in a straight line, exceeds 50 miles. The regulations for this prize are now being drawn up by the Royal Aero Club.

The opening date of the competition will be January 1st, 1923, and the prize will remain open till the end of the year. It has not yet been decided definitely whether there will be a fixed starting point or whether competitors may start where they like. The plan most favoured at present is to have a definite fixed starting point and for the course to be either along the North Downs or the South Downs.

In case this prize should not be won Mr. Selfridge has consented that £500 of the money shall go to the glider pilot who under similar conditions covers less than 50 miles but over 25 miles.

BANG GOES 13s. 6d.

Squadron Leader Alec Gray who put up such a fine show on the last day of the Gliding Week went down to Itford for the week-end with the intention of attempting to beat the Duration Record.

His machine was taken up to Firle Beacon on Saturday afternoon and was firmly picketed down for the night. A tremendous gale got up in the night with the result that the machine was torn from its pickets and was wrecked.

Everyone will sympathise with Squadron Leader Gray on his hard luck and there is some talk of opening a public subscription list to raise the sum of 13s. 6d. and thus recompense him and F/O. Buchanon for their loss.—G. D.

PERSONAL NOTICES.

DEATH.

HAYTER.—At Kenley, on October 24th, as the result of a flying accident, Matthew Charles Hayter, Pilot Officer, R.A.F., aged 21.

Pilot Officer Hayter was posted to 24 Sqdn. from Cranwell in August, 1922. A fine athlete, he won the 220 yds. and was 2nd in the 100 yds. championships at Henlow on July 20th, where he also ran in the 440 yds., 880 yds. and 1 mile relay races. He also belonged to the Cranwell Athletic team, 1922.

ENGAGEMENTS.

DRUMMOND—TAYLOR.—The marriage of Edward Morton Drummond, Black Watch, attached R.A.F., and Daphne Taylor, will take place at the Chapel Royal, Savoy, on November 10th, at 11.30.

PERRY-KEENE—SILBERRAD.—The engagement is announced between Allan L. A. Perry-Keene, of the R.A.F., eldest son of Mr. L. H. A. Perry-Keene, of Redhal, Birmingham, and Katrine Lucy, only daughter of Mr. C. A. Silberrad, I.C.S. (retired), and Mrs. Silberrad, of Park House, Combe Martin, N. Devon.

BIRTHS.

GENGE.—On October 23rd 1922, at "The Firs," Westerham, Kent, to the wife of D. W. Genge (late Lieut., R.A.F.)—a son.

PRESTON.—On October 23rd, at 10, West Avenue, Cranwell, Lincs, Margaret, wife of F/Lt. R. Chevallier Preston, A.F.C., R.A.F., Cadet College, Cranwell—a daughter.

SQUARE.—On October 19th, at Quinta Piquio, Santander, to Frances, the wife of Capt. H. H. Square—a daughter.

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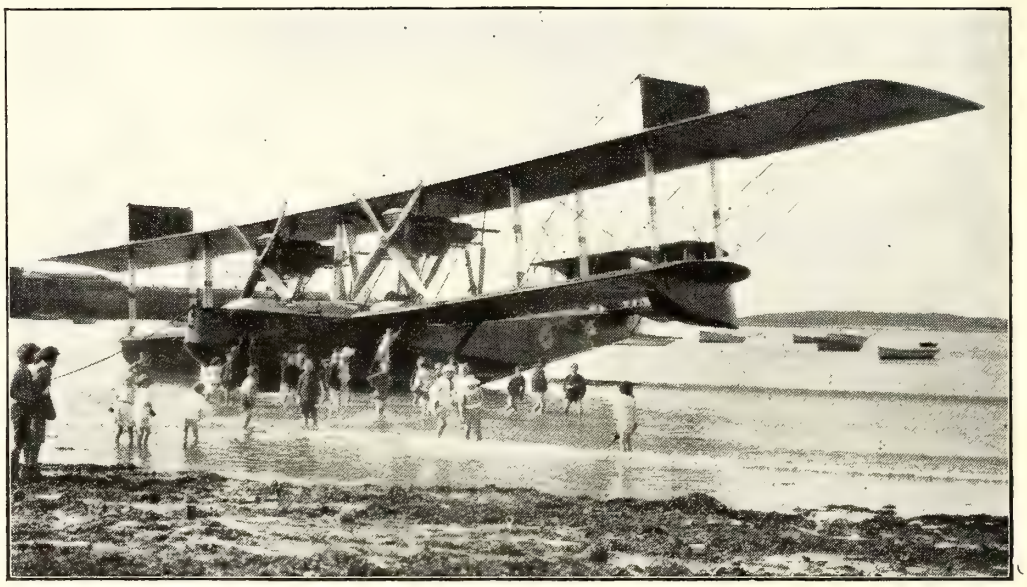
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THE WEEKLY COMMENTARY.

The *Daily Mail* gliding contest has been doubly successful. Before the event there seemed to be two possible results.

The meeting might have produced a number of successful flights and so have stimulated public interest in the sport of gliding. But it seemed probable that such a result would have confirmed the opinions of a certain influential class of technician who held that gliding was simple and of no scientific interest.

On the other hand it might have proved a fiasco as a show—in which case the technicians might have been shaken in their beliefs but the public interest necessary to carry on with further trials would not have been aroused.

In fact the meeting has succeeded both in rousing a very great deal of public interest—certainly enough to ensure that gliding shall continue—and also in persuading those who previously held the reverse view that there is very much to be learnt from tests of gliders.

How this extremely satisfactory result has been achieved should become more or less clear to readers of the somewhat disjointed series of queries and meditations upon the technical aspects of the competition which are all that one can as yet formulate.

LESSONS FROM ITFORD.

The *Daily Mail* gliding competition has been an almost overwhelming success. Before the opening quite a number of those whose opinions should have been worthy of attention were offering long odds against the achievement not merely of the 30 minutes' flight necessary to win the £1,000 prize but even against flights of 3, 5, or 10 minutes. Some of these same gentlemen are now proclaiming that there is nothing in soaring flight—except possibly as a sport—and that there is nothing now left to learn.

As a matter of fact their present opinion is probably of less value and certainly has less justification than their earlier scepticism.

An Unsurpassable Performance.

From one point of view Raynham's flight of 1 hour 53 minutes may rank as a performance which it will scarcely be possible to surpass. To have made a flight of such duration—on a machine hurriedly constructed, and admittedly provided with inadequate controls—in a violently gusty wind with practically no previous experience of this particular type of flying is evidence—if that were needed—of piloting ability of the very highest order.

S/Ldr. Gray's flight on Saturday evening—equally made without experience—was also a demonstration of the skill of British pilots, and of the fact that no uncanny skill or vast experience of soaring is needed to remain in the air for long periods on a glider given wind conditions sufficiently favourable for the particular machine.

Maneyrol's flight is evidence of the same kind. M. Maneyrol has certainly piloted the Peyret machine before but so far as can be discovered he has never before soared for any appreciable period. He is a first-class pilot—he had a highly controllable machine—and he had a wind adequate for soaring.

Inconclusive Evidence.

But it has to be remembered that the conditions at Itford during the competition were astonishingly favourable. Given the right wind, the northern face of the range east of Itford could not be bettered—except in the matter of absolute height—as a soaring district. And there was not only the right wind but plenty of it. The southern slopes of the hill are less favourable than the north—even in a strong south wind. Would any of the machines at Itford have soared on that slope with a reasonable sea breeze? One may quite reasonably doubt it—but one has no doubt whatever that soaring on that face is possible in quite moderate winds given a really good machine.

Raynham's machine can just keep its height on the northern face in a wind of 14 m.p.h. The Hannover "Vampyr" can soar on the western slope of the Wasserkuppe in a wind of 4½ metres per second—about 9 miles per hour. The Wasserkuppe is higher but no steeper and every probable line of reasoning suggests that height of hill affects only the width of the up-current area and the height to which it extends and not the strength close to the hill itself. There is no evidence that any of the other machines which performed at Itford are more efficient aerodynamically than Raynham's—and there is no evidence that the machines which soared at Itford could have done so at the Rhön at the time of Hentzen's 3-hour flight on the "Vampyr"—when the maximum wind velocity was less than the mean velocity on Firle Beacon on the afternoon of October 21st.

No disparagement of the machines at Itford is here implied. In view of the very short period available for construction and the absence of any chance of properly testing the machines before the contest it is a very great tribute to the skill of British designers that any of the machines should have performed at all. It may be regarded as definite evidence that Britain can produce gliding and soaring machines as good as any in the world. The point is that the extraordinarily favourable wind and ground conditions make it impossible to compare the machines at Itford with those developed in Germany and that it would be extremely unwise to assume that the mere breaking of endurance records is a measure of the aerodynamic efficiency of the machines themselves. A good deal more experiment under varying wind conditions will be necessary before we can rest satisfied on this point.

Experts Astray at Itford and Gersfeld.

Even if this question did not arise—even if it could be demonstrated that Maneyrol beat the German record because he had a better machine—there would still remain good reasons for continuing experiments with gliders. It is no secret that everybody was expecting to see the Peyret tandem monoplane crash as it took off—instead of performing as it actually did. It is even a fact that certain of the technical officials at the contest wished to find an excuse for stopping the machine from flying on the ground that it was certainly unsafe.

The Technical Committee at the Rhön actually refused to permit the curious monoplane of Herr Schulz to compete. Nevertheless Herr Schulz flew and flew so well that he was in the end awarded a prize. Not only so but a famous German aerodynamicist stated that this machine was the most interesting glider at the Wasserkuppe.

These matters are mentioned, not by way of ridiculing the technical experts concerned, but solely as evidence that gliding still offers many problems of real importance which require to be solved.

Why is the Peyret tandem monoplane—of a type long ago condemned as aerodynamically inefficient and probably directionally unstable—good enough to have performed as it did?

Why should quite a number of experienced aeroplane designers have produced machines which suffered not merely from inadequate rudder and aileron controls but in some cases appeared to have no control whatever?

Why was S/Ldr. Gray's Bristol-Fokker hybrid perfectly satisfactory in regard to control when machines designed

specially for the purpose of gliding failed miserably in this particular respect?

The Problem of Control.

This question of control has an importance quite apart from its direct application to gliding. Lack of control, particularly at low speeds with engine off has led to more accidents to power-driven machines than any other single cause. The glider has raised the control problem in a new and acute form. There is evidence already that the trouble is not merely one of the area of control surfaces alone—for ailerons and rudders which may conceivably be of inadequate area have not merely given insufficient control—they appear to have produced absolutely no effect whatever.

Conditions in the case of the glider are so different—both aerodynamically and structurally—from those of the average power-driven machine that it is possible that there is some very simple explanation for these failures. On the other hand there is the possibility that a solution of the glider control problem may throw fresh light on the control of all aeroplanes and so lead to results of the utmost importance.

The Value of Shocks.

To the close and critical observer the whole week of the competition has provided a series of shocks. It has revealed to quite a number of persons the fact that they know even less about aerodynamics than they thought they did and fortunately many of those so affected have realised that there is more to be learnt from the glider than they had imagined.

Provided that this technical interest in gliding can be maintained, there can be no doubt whatever as to the scientific value of further gliding experiments. If gliding never produces one single positive result—but can continue to keep people aware of the limited extent of their knowledge it will justify its existence.

The Sporting Aspects.

As to the purely sporting and social aspect of gliding, the week has been conclusive. It is all very well for the sceptic to point out that gliding is mostly walking up a hill slowly and heavily laden and after the exhilaration of the first few glides the labour of climbing to the starting point will assume its proper proportion. But every one at Itford has seen these same sceptics repeatedly climb the hill without even the stimulus of the rapid and exhilarating descent to follow—and there is now no doubt that given the right conditions one need only climb the hill once to glide for as long as one may desire. It will be objected that the necessary conditions will be infrequent, and that a flight such as that of Maneyrol's—though possibly enjoyable once or twice—will speedily lose all interest.

To this there is only one reply. Less than a fortnight ago the contention that the neighbourhood of Itford Hill provided soaring and gliding facilities of the same order as those of the Wasserkuppe, and that it was reasonable to expect that the *Daily Mail* prize could be won there if the weather was reasonably favourable was everywhere received with at best polite scepticism and at worst with impolite scorn.

To-day the suggestion that within two years it may be possible to fly along the whole range of the South Downs in a normal south-west wind cannot hope to meet with any more favourable a reception. Nevertheless one is ready to make it—and if any of those who were offering 50 to 1 against the winning of the *Daily Mail* prize a fortnight ago are willing to offer similar odds against the performance of such a flight the author would be glad to hear from them.—W. N. S.

GLIDER CONTROLS.

As controls gave more trouble than any other detail at Itford, the two sets of line drawings here produced should be of some interest, as they give a certain amount of information as to the details of control gears and surfaces. Other details are also shown in the illustrations, and it will probably be most convenient to deal not with the figures as they appear, but with each machine—referring as necessary to the different figures relating to it.

Peyret.—The controls of this machine are as interesting as they are effective. A figure in the first of the two blocks shows the actual gearing of the "joystick." As may be seen the stick itself is coupled to a gear resembling the differential of a car. When the stick is moved fore and aft, the cross-shaft rotates as a whole and with it all the four levers. The outer pair of levers are coupled directly to the "ailerons" of the forward wing; the after ones are crossed and connected to the ailerons on the after wing. Thus pushing the stick forward pulls up the forward flaps and depresses the rear flaps, and thus provides a normal elevator control.

If the stick is moved to one side or the other the two bevel wheels concentric with the rocking shaft rotate in opposite senses. If the wires to the flaps are coupled direct it will be seen that the ailerons would work in inverse directions on fore and aft wings, owing to the vertical crossing of the after wires. Actually these after wires are crossed laterally also—that is, the wire from the right-hand lever goes to the left-hand rear flap.

A sketch in the second block shows the tail fin and rudder

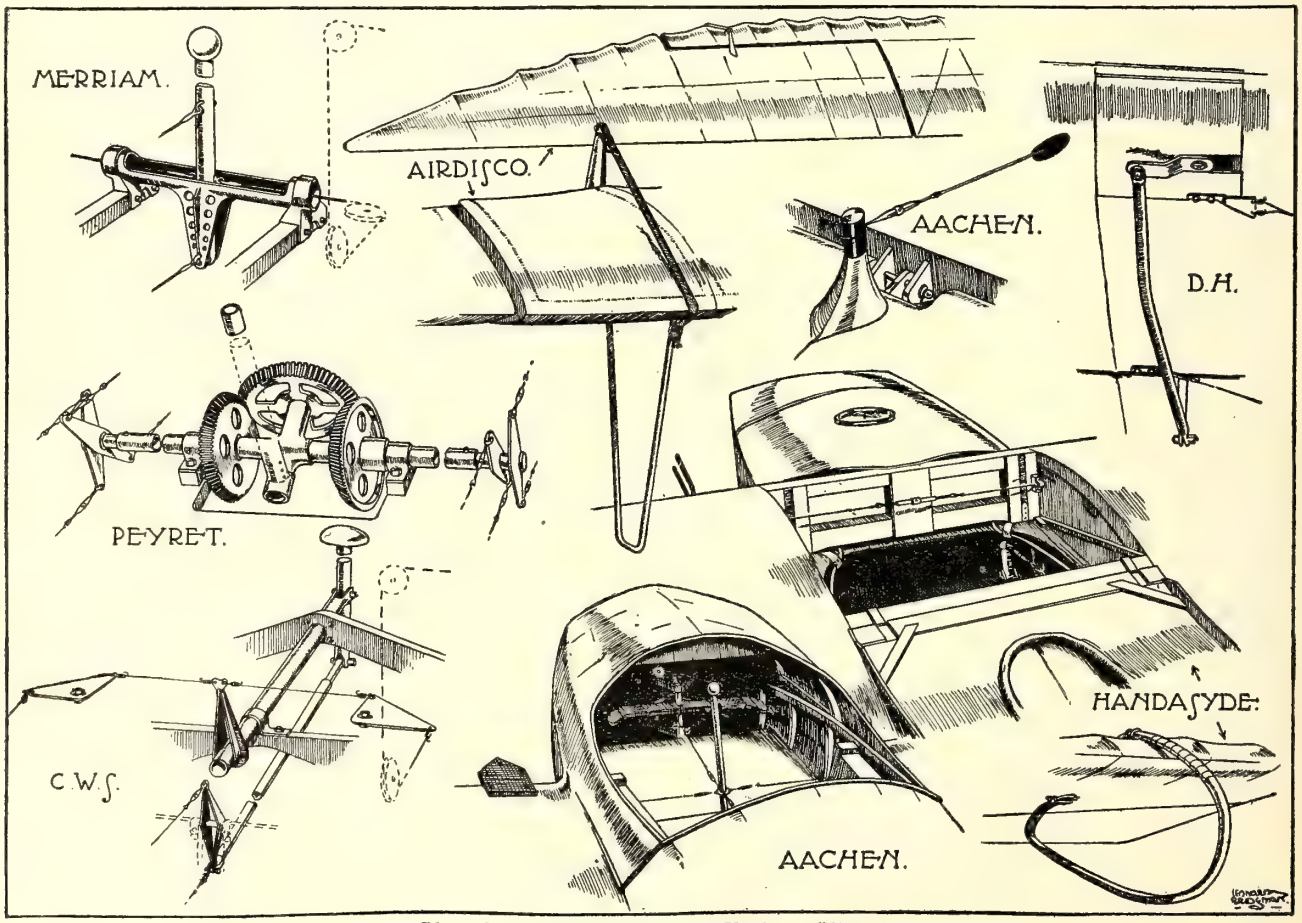


Plate 1.—Control Details of Various Gliders.

BE PREPARED

To neglect to take reasonable precau'ions for safety is more than foolhardy—it is criminal.

"One of the great factors in the next war will obviously be aircraft."—Marshal Foch, January 11th, 1921.

An Industrial Aeroplane Service is a Potential War Force.

At a Meeting of the Supreme Council held at the Quay d'Orsay, Paris, March, 1919, the following question and answer were propounded:

Question: Can civil aeroplanes and airships be transformed easily into weapons of war?

Answer: Unanimously; Yes, very easily and very quickly.

"An aeroplane which can carry a certain number of passengers a certain distance at a certain speed is capable of carrying an equivalant weight in bombs at the same speed."—Brigadier-General P. R. C. Groves in "The Times."

The efficient modern machinery with which it is equipped, the experience of its highly-trained staff as designers and constructors of aircraft in the world war, together with its remoteness from probable centres of attack during hostilities, render the Westland Aircraft Works, Yeovil,

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of this machine. It is interesting to note that examination showed that, as with practically every other machine, it had been necessary to add to its surface.

Handasyde.—The actual control mechanism of this machine was somewhat curious. The elevator alone was controlled by a stick, placed on the right side of the pilot. The rudder was controlled by pedals, and ailerons directly by using the wire strainer in the middle of the aileron " pull down " wire. Raynham therefore had to use both hands—one for elevator and one for ailerons. In practice this control appears to have been somewhat irritating, for it was difficult to avoid attempting to pull the stick sideways.

The ailerons themselves were triangular in plan form, with no chord at their inner end and the maximum chord at the tips. They were operated by a single push and pull rod on the main surface of the wings. This operating rod was coupled to the stalk of a " T " form lever, with the operating wires coupled to each end of the T head.

The triangular ailerons in theory at least should be highly efficient—they cause no sudden break in the wing section at their roots, however much displaced from normal, and they should produce a bigger rolling moment than ailerons of equal area and of normal shape. Actually these ailerons were not effective, and it is somewhat difficult to account for their failure.

The tail surfaces consisted of a balanced elevator, a thin section triangular fin, and a rhomboid rudder. The elevator was operative, but not too effective, and the rudder was entirely inadequate. The fitting of a larger rudder made the trouble worse, and made the ailerons very much less effective than had been the case originally. The trouble in the case of this particular machine is fairly certainly one of keel surfaces, but this subject cannot be dealt with at the moment.

Aachen.—The control gear here is a normal ball-jointed stick operating elevators and ailerons directly in the standard manner. The control surfaces are normal. Both a fixed tail plane and a fixed fin are used, and it is noticeable that the elevator and rudder are both small compared to the fixed surfaces ahead of them. Nevertheless the machine is undoubtedly highly controllable. A point which has a distinct bearing on this matter is that the Aachen machine has a very decided dihedral—a feature absent from all the machines which experienced control troubles.

A sketch on the second plate shows the curious " trouser " undercarriage of the Aachen, which may not be without its influence on controllability.

C. W. S.—The general control gear arrangements are obvious from the sketch on the first plate. Rudder control is by ordinary foot bar. The bell crank for the aileron wires from the rocking shaft have now been replaced by pulleys. The elevator is partly balanced, very large, and there is no fixed tail plane. This control is very sensitive and effective. The machine seems to have no other control whatever. The ailerons are triangular and similar to those of the Handasyde, and they are operated in a precisely similar manner, except that the T lever on the push and pull rod has its stalk set at an angle to give a de Havilland differential effect. The operating mechanism was defective because the levers used on the rocking shaft, etc., were short, and consequently the travel of the operating wires was small.

This led to fairly big loads in the wires, appreciable springing of pulley and lever supports, and the lost motion due to these causes was a large proportion of the total available movement. Quite apart from this, however, the ailerons appear to be entirely ineffective. They are undoubtedly small in area, but this does not account for their entire lack of effect.

So far as can be discovered the rudder is equally ineffective. Its area was twice increased during the competition with no discoverable effect. Pretty certainly the failure of both these controls is due to a common cause. The form of rudder and fin are shown on the second plate.

Another sketch in the second plate shows the body and undercarriage of this machine. The semicircular objects beneath the nose are hoops of twisted rattan cane serving as nose skids.

The machine has shown itself to possess a very fine gliding angle and a tendency to be stable, and it is hoped that it will do well when the control trouble has been overcome.

Merriam.—So far as could be discovered the controls of this machine were satisfactory. A sketch on Plate 1 shows the very neat joystick used, and one on Plate 2 shows the tail fin and rudder.

Airdisco.—This machine also appears to have been satisfactorily controllable. Laterally this might have been expected, owing to the very large balanced ailerons, which formed the whole of the wing tip. As in most other cases it was thought advisable to add to the rudder surface after arrival at Itford, but there is no evidence as to the necessity for this step.

De Havilland.—The two de H. machines appear to have suffered only lateral control troubles. Originally they were

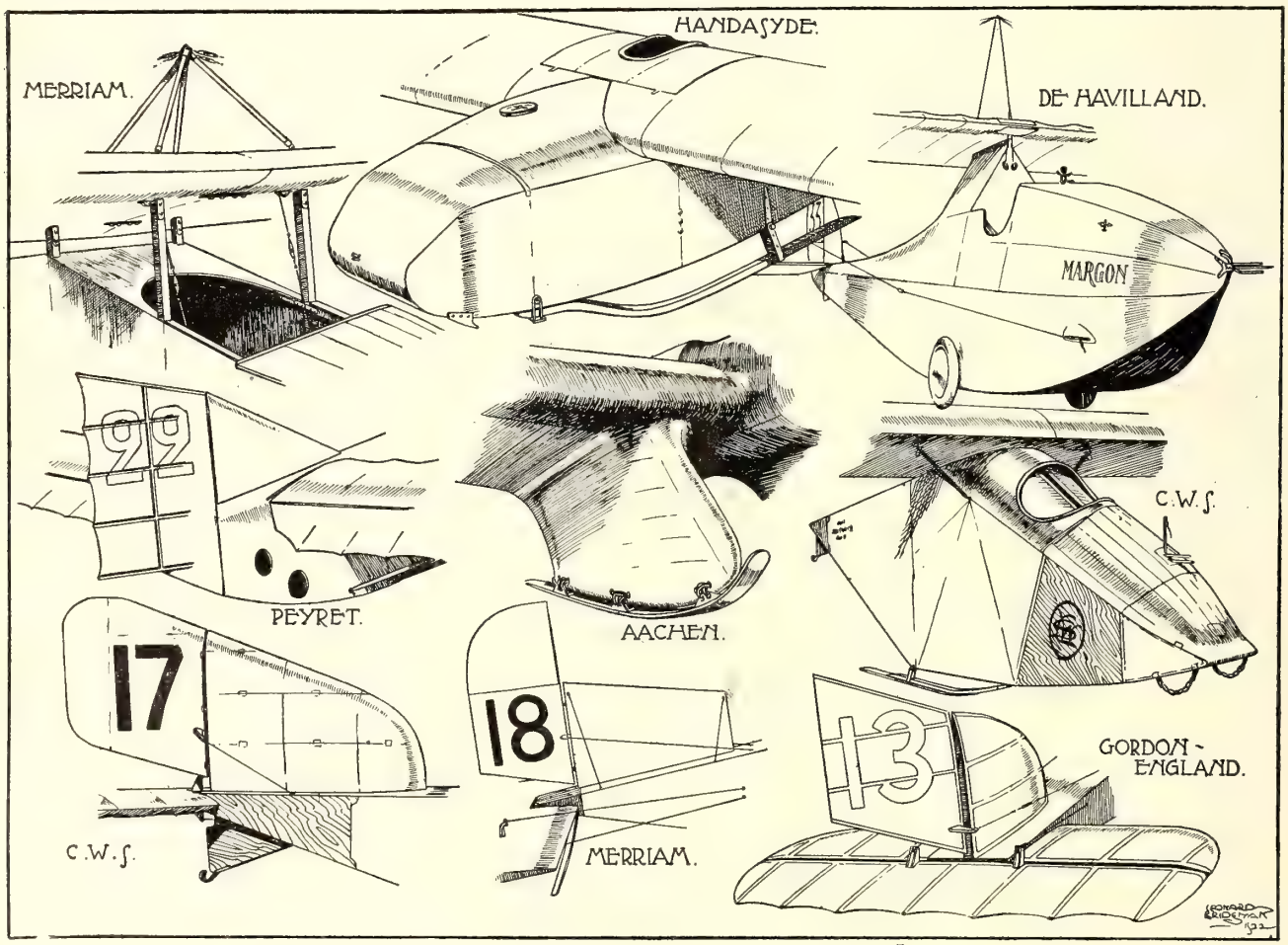


Plate II.—Noses and Tails of Various Gliders.

DE HAVILLAND SUPREMACY

IN SPORT The Air Race round Britain for the KING'S CUP was won by a D.H.4A. Twenty-one aeroplanes started, of which 7 were DE HAVILLANDS. Of the FIRST 6 MACHINES HOME 5 were DE HAVILLANDS.

IN WAR During the period August, 1914, to November, 1918, over 30% of the total number of machines built for the British and U.S.A. forces were DE HAVILLANDS.

D H. military type aircraft are now being used by the following Foreign Governments :—
U.S.A., Spain, Holland, Belgium, Japan, Roumania, Greece, Russia, Poland, Norway, Denmark, Switzerland, etc.

IN COMMERCE DE HAVILLAND commercial aeroplanes are to-day in regular use on the following Air Lines :—

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PRATT'S AVIATION SPIRIT

THREE OF ANGLO'S GOLDEN PUMPS (approved by the Standards Dept., Board of Trade) are now installed at Waddon Aerodrome for the quick supply of Pratt's Aviation Spirit, filtered and without waste.

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fitted with ailerons of ample area, operated by the de H. differential gear. It has been suggested that their effectiveness was impaired by the undoubted flexibility of the wing spars, which allowed the wing tips to warp under the aileron moment in such a manner as to neutralise the righting effect of the aileron. It is extremely difficult to believe that this can have occurred to any serious extent, and it seems probable that a common reason for the failure of lateral and directional control may be found for all the machines so afflicted. This explanation is so far only suspected, but it is hoped that it will soon be possible to develop the suspicion further.

The Record of Itford.

The officially observed flights made during the whole of the gliding competition are given below. In the first place the day by day records are given, and thereafter the performances of each pilot are summarised.

DAY BY DAY.

Monday, October 16th.—(a) Raynham, 1 min. 58 secs.; (b) Raynham, 11 min. 23 secs.; (c) Fokker; 7 min. 3 secs.; (d) Herne, 2 min. 38 secs.; (e) Broad, 2 min. 18 secs.; (f) Jeyes, 3 min. 1 sec.; (g) Fokker, 37 min. 6 secs.; (h) England, 4 min. 32 secs.

Tuesday, October 17th.—(a) Raynham, 3 min. 15 secs.; (b) Raynham, 1 hr. 53 min. 2 secs.; (c) England, 2 min. 7 secs.

Wednesday, October 18th.—(a) England, 1 min. 31 secs.; (b) Jeyes, 2 min. 47 secs.

Thursday, October 19th.—No flying.

Friday, October 20th.—(a) Stocken, 3 min. 18 secs.; (b) Olley, 3 min. 21 secs.

Saturday, October 21st.—(a) Maneyrol, 3 hr. 21 min. 7 secs.; (b) Olley, 49 min.; (c) Olley, 38 min. 47 secs.; (d) Raynham, 8 min. 30 secs.; (e) England, 0 min. 52 secs.; (f) Raynham, 11 min. 54 secs.; (g) Gray, 1 hr. 0 min. 4 secs.

PILOTS' RECORDS.

Maneyrol, 3 hr. 21 min. 7 secs.

Raynham (a) 1 min. 58 secs., (b) 11 min. 23 secs., (c) 3 min. 15 secs.; (d) 1 hr. 53 min. 2 secs., (e) 8 min. 30 secs., (f) 11 min. 54 secs. Aggregate, 2 hr. 33 min. 2 secs.

Olley (a) 3 min. 21 secs., (b) 49 min., (c) 38 min. 47 secs. Aggregate, 1 hr. 31 min. 8 secs.

Gray, 1 hr. 0 min. 4 secs.

Fokker (a) 7 min. 3 secs., (b) 37 min. 6 secs. Aggregate, 44 min. 9 secs.

England (a) 4 min. 32 secs., (b) 2 min. 7 secs., (c) 1 min. 31 secs., (d) 0 min. 52 secs. Aggregate, 9 min. 2 secs.

Jeyes (a) 3 min. 1 sec., (b) 2 min. 47 secs. Aggregate, 5 min. 48 secs.

Stocken, 3 min. 18 secs.

Herne, 2 min. 38 secs.

Broad, 2 min. 18 secs.

THE COUPE LAMBLIN.

Lieut. Rabatel, who so far has met with misfortune in his attempts in the Coupe Lamblin, succeeded, on the 16th inst., in beating Capt. Pinsard's time by 31 minutes. He left Le Bourget on a Goudrou-Lesseure monoplane (180 h.p. Hispano-Suiza) at 09.30 hours, landed at Brussels at 10.47 hours, left Brussels at 11.17 hours and landed at Croydon at 12.35 hours. He left Croydon at 13.05 hours and landed at Le Bourget at 14.58 hours, giving a total flying time of 4 hrs. 28 mins. for the round flight.

At 09.35 hours on the same morning Capt. Pinsard left Le Bourget, on a Nieuport 29C.1 (300 h.p. Hispano-Suiza) in an attempt to beat Lieut. Rabatel and retain the Cup, and on arriving at Croydon had gained 9 minutes, but was there forced to retire owing to engine trouble.

On October 28th Lieut. Rabatel made a further attempt owing to a fear of insufficient official observation on his flight and accomplished the round in 4 hrs. 29 mins.

SPEED.

A Reuter message dated October 16th states that during a Government speed test for aeroplanes, Lieut. Maughan on the Curtiss Army biplane (400 h.p. Curtiss engine) on which he won the Pulitzer Trophy Race, flew a measured kilometre at a speed of 248.5 miles an hour. Continuing the flight Lieut. Maughan was timed at 232.22 m.p.h. on four laps and an average speed of 229 m.p.h. on eight laps.

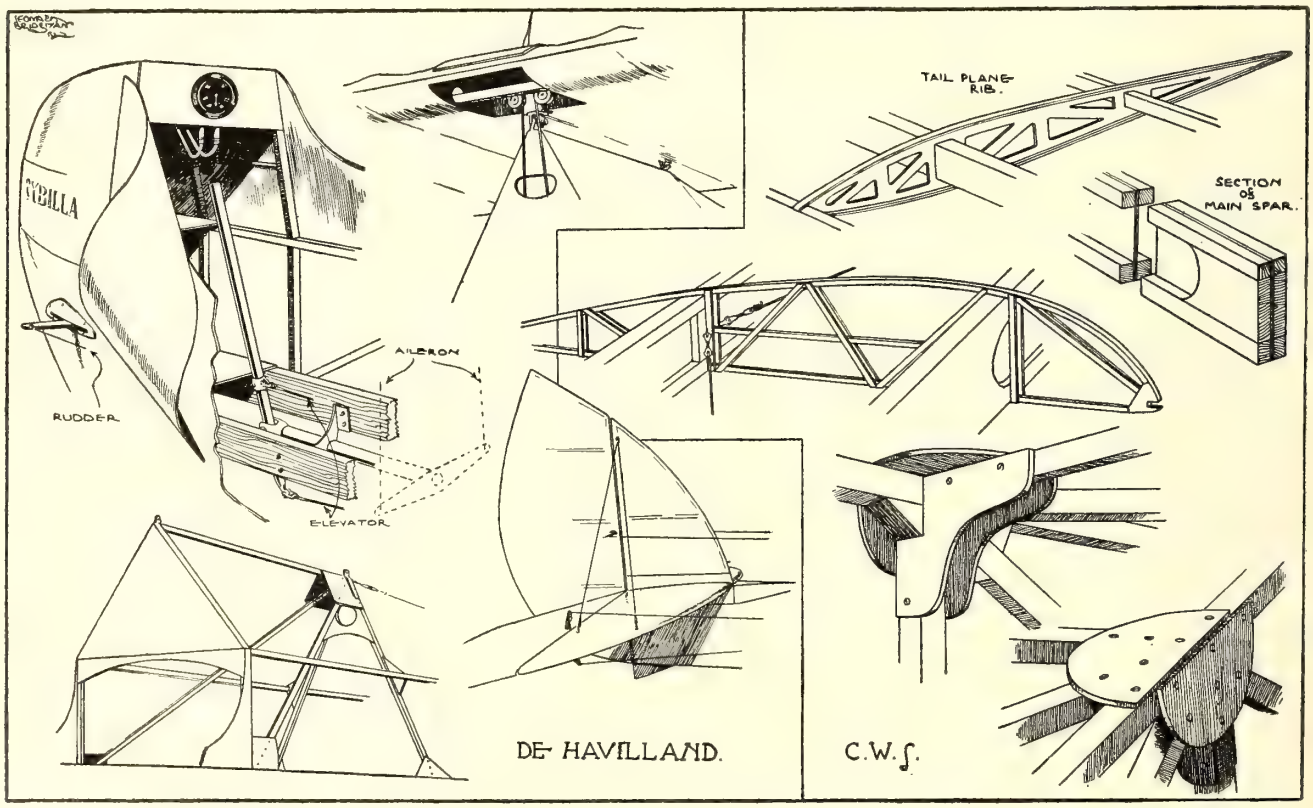
The test which took place at Mount Clemens, Michigan, was electrically timed.

"HAWKS" IN CARS.

Rolls-Royce, Ltd. (consequent on a certain public announcement which has come to their notice), desire to make it known that they are not selling, and never have sold, any of their famous aero engines known as the "Hawk" engines, for the purpose of motor-cars, and that any purchase or use of those engines would be solely on the responsibility of the parties so using them.

MORTGAGES, CHARGES & SATISFACTIONS

AIRCRAFT DISPOSAL CO., LTD.—Satisfaction in full on September 19th, 1922, of debenture dated March 12th, 1920, to secure all moneys which should become payable to the Minister of Munitions under a contract of same date between the said Minister and the Imperial and Foreign Corp. Ltd.



MORE GLIDER DETAILS.—On the left are shown the cockpit, the pylon structure carrying the wing, the run of the aileron cables into the wings, and the tail unit of the de H. glider.
On the right are shown the tail plane ribs, the main compression ribs, the wing spar construction and specimens of typical fuselage joints of the C.W.S. glider. The extraordinarily good workmanship and finish of this machine was greatly admired, and the Central Aircraft Company have every reason to be proud of their share in its production.

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F- A
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C.M.A. Air Lines is the British title of the Compagnie des Messageries Aériennes, whose head office is at 2, Rue Galilee, Paris. The Company was originally founded early in 1919, by M. Louis Breguet, for the transport of goods from Paris to Lille, but later, when the two Companies having been so much disturbed by the European War this line, which was the first commercial aviation service in the world, was ~~900~~ extended to Brussels and the line from Paris to Brussels has been maintained by the Company ever since.

In September, 1919, a service between London and Paris was inaugurated in conjunction with Handley Page Transport, Ltd. This was originally operated three times a week each way, but later, when the two Companies separated, a daily service was commenced, which has now been extended to a thrice daily service.

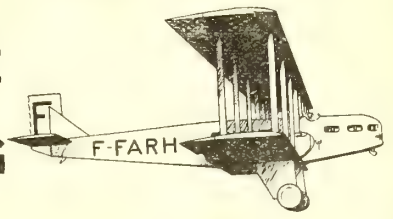
By an arrangement with the Compagnie Générale Transatlantique a service is run to connect with the arrival and departure of this Company's sailings between Le Havre and New York. This is the first occasion on which a large shipping company has recognised the necessity of using commercial aviation in its transport policy.

The Company's service has now reduced the time of transit between London and Paris to two and a-half hours; between London and Le Touquet to one and a-quarter hours; between Paris and Le Touquet to one and a-quarter hours; between Paris and Brussels to two and a-half hours and between Brussels and Amsterdam to two hours. The line has been inaugurated to run direct from London to Marseilles, calling at Paris and Lyons and connecting with the Steamship Lines to India and the East. This brings Marseilles within eight hours' reach of London and Lyons within six and a-half hours.

The C.M.A. Passenger Service is maintained by twin tractor Farman Goliath Biplanes, fitted with two 300-h.p. Renault Engines and with a seating capacity for 12 passengers, pilot and mechanic. This machine has a wing-span of 92 ft., a length of 49 ft. 6 in. and a height of 16 ft. Its cruising speed is 93 m.p.h. The freight, mail and newspaper services utilise the smaller type of single-engined Spad and Breguet.

The Compagnie des Messageries Aériennes is an association of aircraft constructors for the study and application of Aerial Transport, and among its Board of Directors appear the well-known names of Messrs. Blériot, Breguet, Caudron, Farman, Morane, Luquet de St. Germain and Renault.—*Extract from R.A.F. Year Book.*

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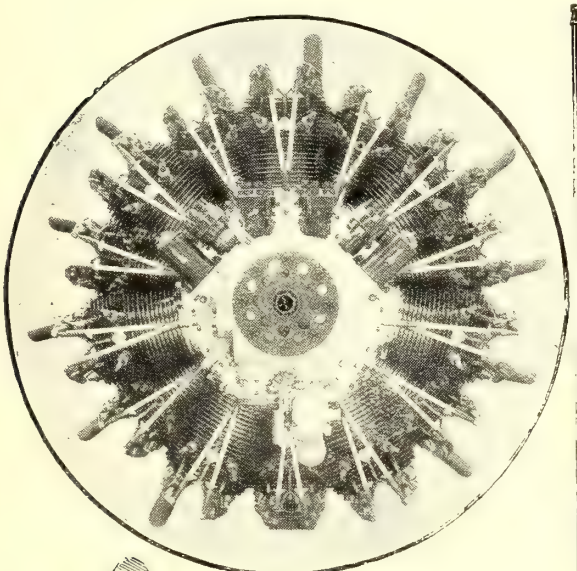
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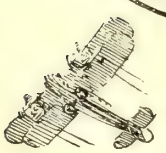
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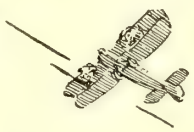
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ANALYSIS OF FIGURES.

FOR WEEK ENDING OCT. 29th

Number of trips made during week.—I.L. 13, H.P. 11, D.A. 12, M.A. 21, G.E. 10, K.L. 12, P.O. 3.

Number of passengers carried.—I.L. 76, H.P. 92, D.A. 82, M.A. 51, G.E. 45, K.L. 9.

Total number of trips by British machines: 37, carrying 250 passengers.

Total number of trips by foreign machines: 45, carrying 105 passengers.

Trips per day.—Monday, 15; Tuesday, 12; Wednesday, 16; Thursday, 13; Friday, 11; Saturday, 13; Sunday, 2.

STATISTICS.

Machines, 82; Passengers, 355; Crews, 139; Total Personnel, 494.

Corresponding week last year:—

Machines, 57; Passengers, 134; Crews, 77; Total Personnel, 211.

Corresponding week, 1920:—

Machines, 111; Passengers, 192; Crews, 140; Total Personnel, 332.

NOTES OF THE WEEK.

In spite of the gliding contest Croydon has for the last three weeks been pursuing its own untrammelled course in much its usual way.

For the Aircraft Disposal Company while Capt. Stocken was away at Itford Mr. Perry carried out the test work, putting through numerous Snipe, D.H.9s., Bristols and Avros. On Sunday last week Mr. Perry tested two D.H.9s. and the following day a brace of Snipe and a Bristol Fighter. On Tuesday he took a D.H.9 to Brussels, as also did Capt. Stocken who had by then returned. On Wednesday Mr. Perry tested an Avro and on Saturday Mr. Hayns went to Brussels on an Avro and Capt. Stocken took thither a D.H.9. Various people during the past week have been down to the works to see what they can do in the way of buying 13/6 pennyworth of glider and it seems there will possibly be quite a number of machines built up from Disposal Company supplied parts ready to go for the Selfridge prize next year.

Notwithstanding the bad weather the Air Lines are actually carrying a few more passengers than they did last month. A short time ago Handley Page Transport, Ltd., came up against the 1,000th chance. Mr. Larry Carter was bringing the W.8 back from Paris and when near Tonbridge one engine cut out and within five minutes the other one also cut out through an entirely different cause. Mr. Carter, however, managed to get the machine into Penshurst Aerodrome. This was the first case of a double engine-stoppage on the line.

There is talk of Handley Page Transport extending their line beyond Paris next year. Possibly Italy may be their objective.

The Instone Air Line are doing great business on the Brussels-Cologne route and almost invariably have all their seats occupied. There has been some talk of running the London-Brussels leg with the D.H.34s. and keeping the "Vulcans" for the Brussels-Cologne leg. Furthermore it has been suggested that a second machine will also have to operate on this service to carry the money in mark notes for the pilots. Mr. Robinson jun., late of the Berkshire Aviation Company and the Daimler Airway, has now joined the Instone Line, and on return from his first trip to Cologne he seemed quite overawed by the fabulous wealth in marks which he appeared to have amassed. Although to all outward appearances it looked like a substantial fortune when he came to work it out it came to about 15s. in English money.

A certain amount of trouble has been experienced with the "Vimy," and she has been over to Farnborough to be attended to by an R.A.E. specialist. One of the D.H.18s. G-EAWW has now been re-conditioned by the De Havilland Aircraft Company and the Instone pilots have been flying her during the week renewing old acquaintance.

The Daimler Airway started the Manchester Service on Monday of last week and up till Saturday they had carried 40 passengers between London and Manchester. It would be a great saving of time if the passengers from Manchester could be set down at Cricklewood instead of at Croydon. Ten minutes in the air would be saved and 20 on the ground, making half-an-hour in all, which is no inconsiderable amount to business men. The machine need only stay on the ground at Cricklewood long enough to disembark the passengers and practically no time need be wasted.

The service to Holland now terminates at Amsterdam instead of at Rotterdam as it has been found that more people wanted to go there than to Rotterdam. The incoming machines from Amsterdam and Manchester are usually timed to arrive at Croydon simultaneously and through passengers from Manchester are transferred to the Amsterdam machine and *vice versa* with practically no waste of time whatever.

On Wednesday of last week Mr. Hinchliffe was up testing a D.H.34 and doing some very pretty flying with it. Towards the end of this flight he carried out startling stalls and steep banked turns and everybody expected him to loop.

Last Sunday Mr. Cobham arrived back from Constantinople on the D.H.37. Before he was expected the usual signal rockets were fired up, most of which fell on the roof of Mr. Leverton's house, which, he said, reminded him of the days of air raids.

The C.M.A. Air Line, as the Compagnie des Messageries Aeriennes call themselves, have now started their winter service. In future there will only be one passenger machine and one goods machine per day in each direction.

The passenger machine from London will leave at 11.00 hours and the passenger machine from Paris at 12.00 hours. The freight service from London to Paris will leave at 12.30 hours. There will be no Sunday services.

On Saturday Mr. Shepperson, who has now joined Major Savage's sky-writing concern, left for Paris on the S.E.5a. which Mr. Cyril Turner flew in the King's Cup Race. One has heard it rumoured that the sky-writing rights in France have been taken over by the Citroen Company.

One or two French competitors for the Coupe Lamblin have passed through Croydon in the last three days. To-day is the final date open for the competition and so far as one has heard no one has been able to beat Lieut. Rabbatel's time of the past week which he made on a Goudron-Lesseure monoplane.

Messrs. Herne and Olley on returning from the gliding competition found engineful gliding quite funny after ordinary flying at Itford Hill. Mr. Olley particularly finds it most curious not to have Mr. Fokker dashing about the aerodrome telling him how to fly from the ground, and Mr. Herne wanted his D.H.34 with a full load catapulted off the ground with elastic.

On Monday next the annual aerodrome dinner will take place at the Greyhound Hotel, Croydon, with Sir Sefton Brancker in the chair. As last year the dinner has been organised by Mr. Coleman and the directors of all the air lines and other concerns on the areodrome have intimated their intention of being present. Last year it may be remembered that Mr. Handley Page was the only highly placed personage other than the personal staffs of the aerodrome to appear and he duly scored over his rivals.—C. D.

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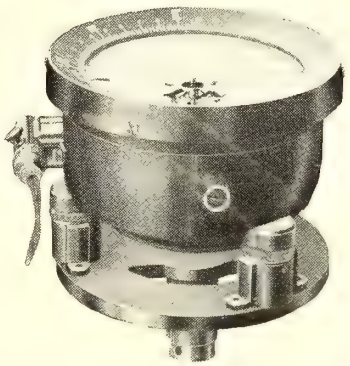
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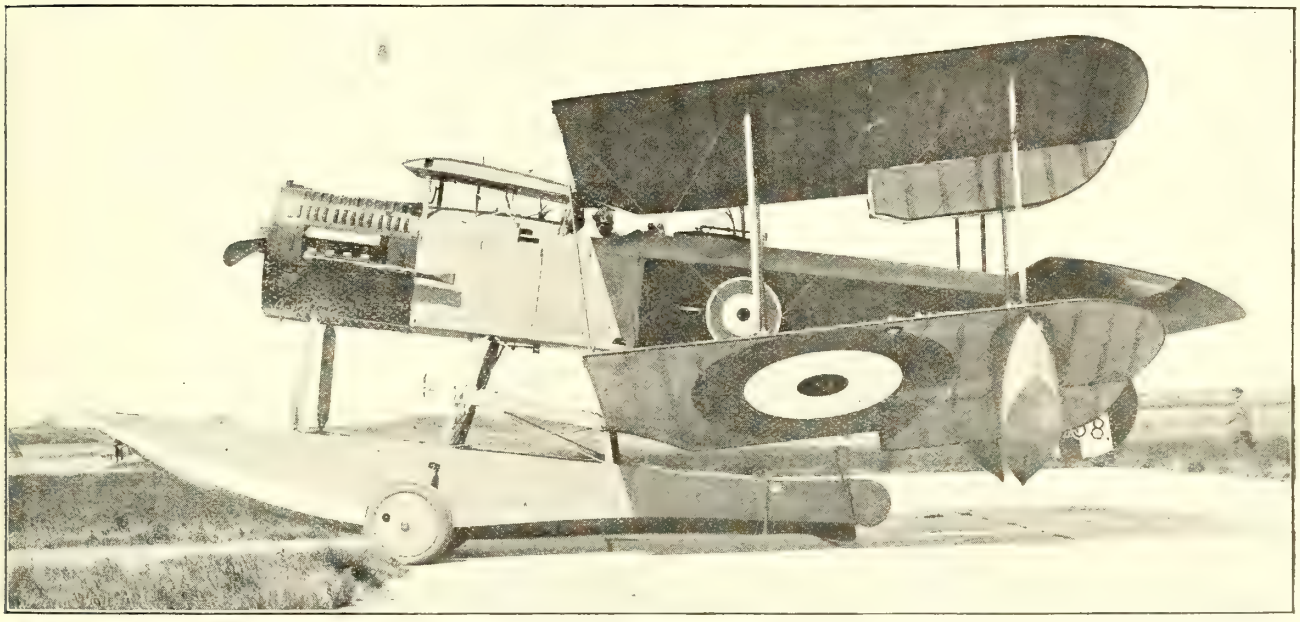
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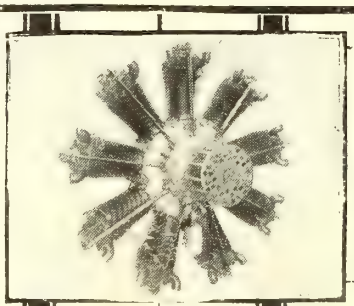
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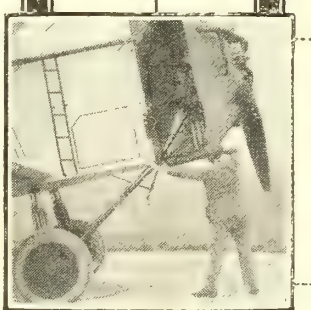
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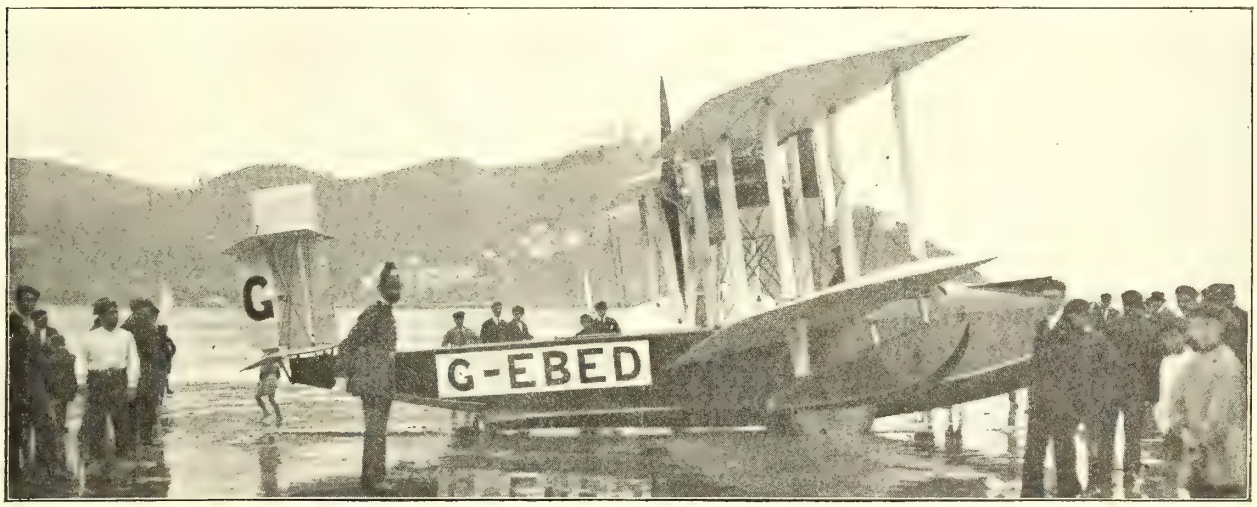
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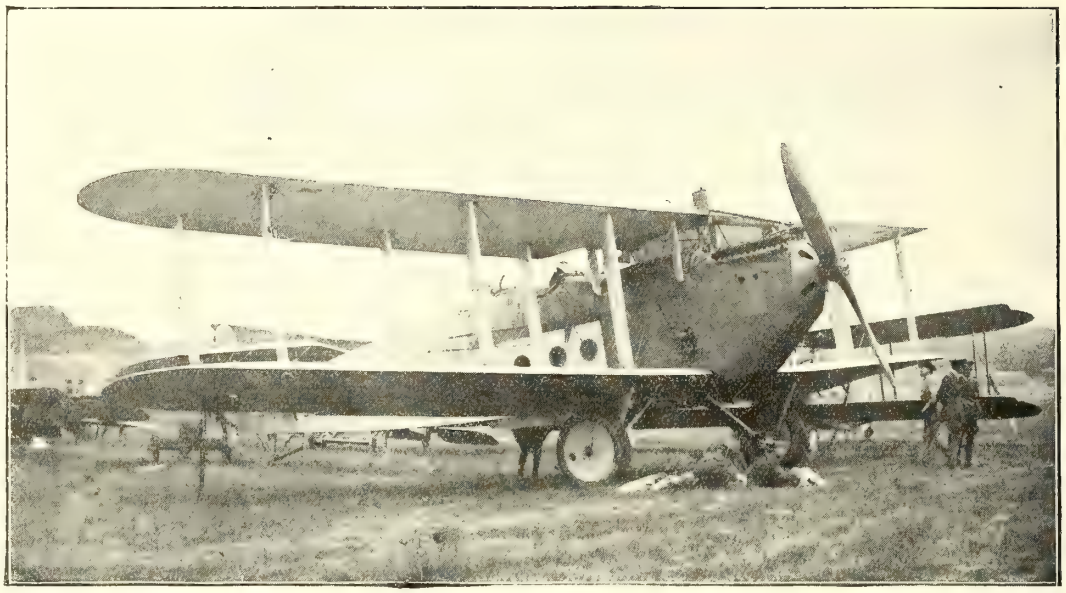
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ON THE NEW AIR MINISTRY.

Unfortunately the appointments made by Mr. Bonar Law to the posts of Secretary of State and Under-Secretary of State for Air were published just too late on Tuesday of last week to reach this paper before going to Press. It is now officially announced that Sir Samuel Hoare, Bart., C.M.G., has been appointed Secretary of State for Air and that the Duke of Sutherland is to be Under-Secretary.

It has now been definitely stated that the Secretary of State for Air will not be a member of the Cabinet. There are of course very strong arguments in favour of keeping the members of the actual Cabinet as low as possible, but granting the validity of all such arguments it does seem ridiculous that "One of His Majesty's Principal Secretaries of State," as the Air Minister is called in the Act which created the Air Ministry, should not be a member of the Cabinet, more especially when he represents the force which is now officially recognised as the First Line of Defence of the British Empire.

If we had, as we should have, a Ministry of Defence or a Ministry of War controlling departments for the Air Force, Army and Navy, to put them in their order of importance if not in their order of seniority, then it would be perfectly correct that the Secretary of State for Defence or War should be in the Cabinet, to the meetings of which he might call whichever Under-Secretary was concerned in the matter under discussion. But if the Ministers for the Navy and the Army are to have seats in the new Cabinet then undoubtedly the Air Minister should also be a member of the Cabinet. This, however, is a matter which may possibly be argued again after the General Election has decided whether Mr. Bonar Law is to have a sufficient majority in Parliament to enable him to govern the Nation.

The New S. of S.

So far as the new Secretary of State is concerned little is known about him, but what is known is entirely to his credit and one is unable to discover anything to his discredit. He comes of a famous banking family and is one believes a director of Cox's Bank. Consequently it may be assumed that he has a business head and a good working knowledge of Service matters.

The *Daily Telegraph* publishes the following note concerning him:—"Sir Samuel Hoare is the eldest son of the late Sir Samuel Hoare, Bt., M.P., for Norwich, and was educated at Harrow and New College, Oxford. After unsuccessfully standing for the Parliamentary representation of Ipswich in 1906, he was elected to the London County Council, of the Fire Brigade and Higher Education Committees of which he became Chairman. He has been M.P. for Chelsea since 1910.

"In the Great War, in which he was a Lieut.-Colonel on the General Staff, his services were recognised by a mention in despatches, the C.M.G., and Russian, Italian, and Czecho-Slovakian decorations. He has also assisted in the work of the Church National Assembly, the Central Unemployed Body, the Royal Commission on the Civil Service, and the Chemical Advisory Council on Import Restrictions. During the life of the late Parliament he was selected as Chairman of the Committee to deal with refugees from Ireland.

"Sir Samuel, who was born in 1880, married, in 1909, Lady Maud Lygon, daughter of the sixth Earl Beauchamp."

The *Morning Post* says in addition:—"He has taken a leading part in discussions on foreign affairs (particularly those relating to South-Eastern Europe), is a quiet speaker, with a good augmentative [argumentative?] style, and was always regarded as a certain member of the next Conservative administration. He has served on a good many official inquiries, and is at this moment Chairman of the Irish Refugees Relief Committee. He is a member of the House of Laymen, and one of the leaders of the Church party in the House."

It is evident from these notes that he is a young man to be a Secretary of State, but the nature of his interests indicate that he is of a serious turn of mind and is concerned for the well-being of others. That at any rate is distinctly promising in a man whose duty it will be to establish on a proper basis a force which despite its vital importance to the Empire has hitherto been treated as the Cinderella of the Services. A member of the Central Unemployed Body may very well be interested in the lack of use made of the R.A.F. in India, for instance. And his experience on the Higher Education Committee should be all to the good of the Royal Air Force in which it is to be feared the higher education is not a predominating feature.

Sir Samuel Hoare has one outstanding qualification as Air Minister and that is the fact that so far as can be discovered he has hitherto taken no interest whatever in aviation. Thus he will approach the problems of the Air Ministry with a highly trained and obviously capable mind entirely free from preconceived prejudices.

One gathers that in the Air Ministry itself it was feared that somebody might be appointed to the post who had in the past posed in Parliament as an "air expert." While fully recognising the excellent work which has been done by those air experts who formed themselves into the Parliamentary Air Committee it is nevertheless as well to recognise that nearly all of them have so many theories of their own about aircraft in peace and war that they would have been very dangerous people to place in the post of Air Minister.

Almost inevitably they must have endeavoured to impose their own ideas on those of the regular officers and permanent officials at the Air Ministry who have in the past few years evolved from chaos what is to-day a very reasonably efficient and entirely effective Government Department. Sir Samuel Hoare being without expert knowledge or personal prejudices or preconceived ideas may be trusted to let his permanent officials get along with their jobs until such time as he has acquired a grasp of the whole position and feels competent to bring his own special qualifications to bear on the subjects which come before him.

Probably finance, in the sense of getting the best possible value for money expended, is the weakest side of the Air Ministry to-day and it is to be hoped that Sir Samuel's banking and business experience will assist him in getting better value for money than the Air Ministry is doing at present. Money is needed to buy new machines and new engines and to carry out useful experimental and development work. There are many other directions in which money could be saved and it is to be hoped that the first evidence of the new Air Minister's fitness for his post will be shown in the acquisition of new equipment for the R.A.F. One wishes him every success in his work, and one can wish him no better than that he may be as well liked and as loyally supported by his subordinates as well as his predecessor Captain Guest.

The Under-Secretary.

The Duke of Sutherland has been mildly connected with aviation for some time. For some little while he has been President of the Air League which hopes some day to be to the Royal Air Force what the Navy League was to the Navy in the great days of the late and ever-to-be-lamented Robert Yerburgh. One gathers that the young Duke has in fact done a good deal to increase the activity of the Air League. Also it will be remembered that he entered an aeroplane for the King's Cup Race, thus showing a very practical interest in spreading the gospel of aviation.

As Under-Secretary for Air he will be primarily concerned with Civil Aviation as was his excellent predecessor. One can only hope that he will earn as much high appreciation in so short a time as did Lord Gorell. In connection with Civil Aviation he will necessarily be pretty closely in touch with Major-General Sir Sefton Brancker, Director-General of Civil Aviation, whose double life as D.C.A. and as Chairman of the Racing Committee of the Royal Aero Club was disclosed by Colonel Moore-Brabazon recently. It is not certain whether the Duke of Sutherland will also be able to lead a double life as Under-Secretary for Air and as President of the Air League. As the primary function of the Air League is to excite whatever Government may be in power to

greater aerial efforts one imagines that the Duke will have to lead his official life only.

In referring to him the *Daily Telegraph* says :—" The Duke of Sutherland is the fifth of the name, and succeeded his father in 1913. During the war he served in the North Sea in command of His Majesty's yacht *Catania* in Belgium with the British Military Mission to the Belgian Army, in Egypt in command of a motor-gunboat flotilla, and in the Adriatic in command of another flotilla.

" In 1912 the Duke, who is in his 35th year, married Lady Eileen Butler, eldest daughter of the fifth Earl of Lanesborough. Owner of about 1,000,000 acres, his Grace is Lord Lieutenant of Sutherland and President and Chairman of the County Territorial Association.

" He has represented His Majesty as High Commissioner to the General Assembly of the Church of Scotland On behalf of the late Government he acted for some time as representative of the Colonial Office in the House of Lords."

From his war service one may assume that his sympathies will be with the Navy rather than with the Army but it is to be hoped that he will not be too enthusiastically Naval in his views. It is curious that both he and Sir Samuel Hoare should be closely connected with Church assemblies. The connection may imply a tendency towards the ecclesiastical but one imagines that the personnel of the R.A.F. need not deduce therefrom that the Secretary and Under-Secretary for Air will insist on an undue quantity of church parades at air stations.

To be quite serious, however, it would seem that Mr. Bonar Law has made an excellent choice in these appointments. Much play has been made by Mr. Lloyd George and his motley crew with the idea that the late Cabinet embraced the best brains in the country. It will be remembered by old hands in aviation that at one disastrous period in the history of the R.F.C. the Minister then responsible for Military Aeronautics, one believes it was Colonel Seely as he then was, laid great stress on the fact that the Royal Aircraft Factory at Farnborough, which was in fact responsible for the disastrous state of affairs, was composed of the best brains in the country. It would seem that Mr. Lloyd George's aggregation of best brains has been very similar in its effect to that at Farnborough in the past.

British pre-eminence in the air was won in spite of the best brains at Farnborough by the sound experience and common sense of the flying officers of the Old Army aided by the intelligence and experience of the British aircraft constructors of the period. It is to be hoped that history will repeat itself and that the eminent common sense disclosed in the records of Sir Samuel Hoare and the Duke of Sutherland aided by the goodwill of the R.A.F. and of the British Aircraft Industry will in the new administration again place British Aviation in front of the rest of the World.—C. G. G.

ON AIRSHIP DEVELOPMENTS.

One learns on reliable authority that considerable activity is in progress at the Zeppelin Works at Friedrichshafen. A Zeppelin for the United States Air Service is well under way, apparently to replace the ill-fated R.38. Consequently there are many American official people residing at Friedrichshafen and studying the process of building the ship. In addition there have been recently representatives of four American financial groups, each of which is endeavouring to obtain the Zeppelin rights for America. It is said that the Goodyear Company, who have already built small airships in the States, are among these groups.

The Zeppelin people themselves, one gathers, do not want competition beween rival American airship groups at the present stage of airship development and would like to see the various American groups amalgamating their interests.

There is also at Friedrichshafen a Spanish mission which is one believes connected with the proposed Spanish-American Line from Seville to Brazil and thence to the Argentine. It is not very clear how far the affairs of this Spanish-American Line have actually progressed, but evidently the proposition is quite serious or there would not be a Spanish mission in residence at Friedrichshafen.

It is said that there are also several Russians in the neighbourhood closely in touch with the Zeppelin Company and evidently with the idea of ultimately acquiring Zeppelins for sale to the Soviet Republic, though how Russia is going to pay for such vessels even with the Mark at its present value is a little difficult to see.

A particularly interesting piece of information is that a Zeppelin airship was actually in hand for the British Government as part of the reparations due from Germany but that quite recently work on it has ceased. It is rumoured that this is because the Germans have come to the conclusion that they will not have to pay any more reparations. Germans themselves say that if England demands the ship they will be delighted to supply it, but one's personal opinion is that the Air Ministry has no intention of asking for a big airship for the good and sufficient reason that unless under a Conservative Government a considerably bigger Vote is available for the Air Force there will obviously not be enough money to run an airship if we get it.

One's informant adds " Airship shares are distinctly rising. Given a year's good work and luck you may have the beginnings of an industry which will compare with the shipbuilding industry in time." Personally one is still of the opinion that the aeroplane business will approach the importance of the shipbuilding industry long before the airship industry does so, though one believes equally firmly that the airship industry will in fact be of very great importance in due time.—C. G. G.

ON A LESSON FROM THE UNITED STATES.

All concerned with American aviation deserve to be congratulated heartily on the astounding results achieved by American aeroplanes in the Pulitzer Trophy Race and in Mr. Maughan's speed-record attempts thereafter. There was a time when we in Europe were justifiably sceptical about the figures published for American records, whether for speed, altitude, duration, or distance, but in these days when the United States Air Services are themselves intimately concerned with all such records it may be taken that figures are invariably and indisputably accurate. In fact they are probably more accurate than those of any other country in that for altitude and speed performances the most highly developed types of measuring instruments are used.

Mr. Maughan's wonderful speed performances more than justified the principle on which the United States Air Services (Military and Naval) encourage the American Aircraft Industry. The record-breaking single-seater of to-day is if not actually the single-seater fighter of to-morrow at any rate the type from which the fighter is best developed. It is therefore very well worth the while of the Services in any country to act on the same principle and order the building of pure speed machines.

One is told that in the case of the Pulitzer Trophy machines certain of them were built with the direct technical assistance of Service scientists and that others were built to the order of the Services but that the makers' designers were given a perfectly free hand to design as they pleased. In this connection it is particularly interesting to note that the Curtiss machines were entirely the work of the Curtiss engineers. One is told that not a single thing on these machines had been developed by the Army or Navy and that those of the technical officers who were present at the Detroit Meet went home feeling somewhat depressed at the defeat of their own scientific theories by machines which were the outcome of mere practical aircraft engineers, although naturally they were glad that American aeroplanes had again taken their place at the head of the world's speed machines.

In this result there is a very useful lesson for the Department of Supply, Research and Equipment at the Air Ministry. If only the Air Ministry would order experimental machines for certain specific purposes from the British aircraft firms and would leave the designers of those machines a perfectly free hand to do what they like with their designs instead of loading them up with innumerable time- and money-wasting gadgets our experimental machines would cost very much less, they would have very much higher performances, and they would be produced so much more quickly that it would probably be possible to get through two or three successive " marks " of one machine and put them through their type-tests and collect all the desirable figures from them in the time which it now takes to get out the one specimen machine complete with Air Ministry gadgets.

It is earnestly to be hoped that this lesson from America will not be wasted on the British Air Ministry. Undoubtedly there is much in this country from which American aircraft designers could learn so far as design and construction are concerned but by way of compensation we in this country can learn a great deal from American methods.—C. G. G.

A NOTABLE RESURRECTION.

All concerned with British aviation, especially those who regard with respect and affection the pioneers of the British Aircraft Industry, will learn with deep satisfaction that the Sopwith Aviation Company, Ltd., are about to pay 20s. in the pound to their creditors. A rumour to this effect effect appeared in one of the evening papers some little time ago and one is now very pleased to be able to confirm it on the authority of the Receiver of the firm.

At no time has the Sopwith Aviation Co., Ltd., been insolvent so far as its ordinary creditors were concerned. The reason that the firm had to shut down and go into liquidation was simply and solely the enormous claim put in by the Treasury for Excess Profits Duty. During the last year of its activities the Sopwith Company made heavy trading



Famous Pilots and the NAPIER 450 H.P AERO ENGINE

Captain C. D. Barnard saw considerable service with the R.A.F. in France. Later was engaged testing all types of machines and engines.

After leaving the Service, Captain Barnard secured position as Test pilot with the Sopwith Co., with whom he remained until he joined his present firm—the De Havilland Aircraft Co., Ltd.

Captain Barnard is in great demand for long flights requiring skill, courage, and resource. One of the many achievements to his credit is a Non-stop flight from London to Glasgow in under four hours.

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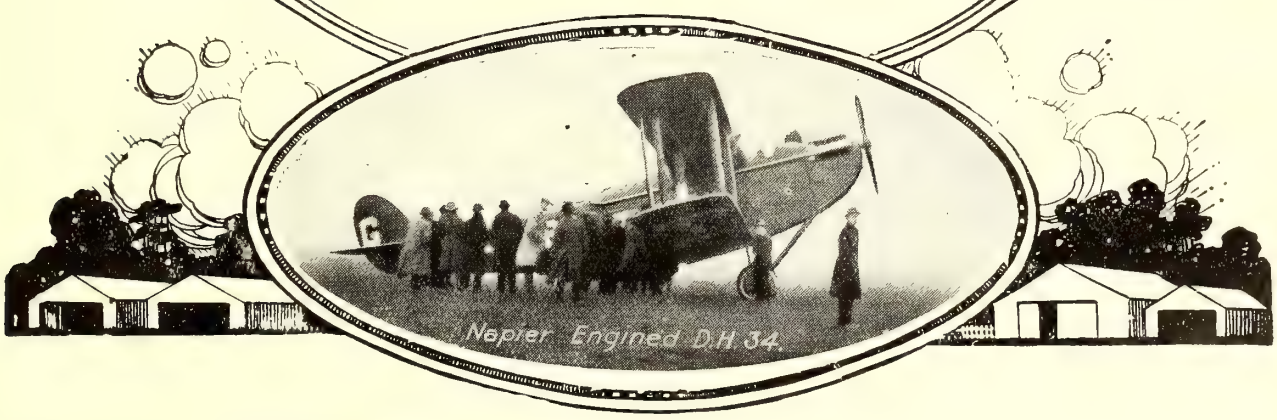
In both the latter types (the 29 and 34) the pilot's seat, as you know, is within a yard of the engine, yet the absence of vibration and rattle is most marked.

I carry out all height and load tests with full throttle, but the Napier never shows signs of flagging or labouring, and keeps wonderfully cool.

The pilots using D.H. machines on the Cross-Channel service all speak well of the engine, and most of them swear by it!"

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losses and if these could have been written off against the Excess Profits Duty claim the firm might have continued its activities. Unfortunately the Treasury claims could not be immediately written off against the firm's losses and so in order to protect the interests of the creditors it was necessary to put the firm into the hands of a receiver.

This unhappy event happened so long ago that one forgets the precise circumstances but one retains a very clear impression that the policy pursued, a policy which has now proved so immensely to the advantage of everybody concerned, was that advocated by Mr. R. O. Carey, who was then the joint managing director of the firm, and by Mr. Musgrave, the secretary. Such a course meant that the very remunerative offices held by them would cease to exist and it is possible that they might have put more money into their own pockets by pursuing other courses which would ultimately have led to complete disaster. The more credit therefore is due to all the directors of the firm in pursuing the particular policy which has led to this happy result.

Much on the principle that there is more joy in Heaven over one sinner that repenteth than over ninety and nine just men who need no repentance so there is more joy in the aeronautical community over one firm which goes into liquidation and ultimately pays 20s. in the pound than over ninety and nine firms which never go into liquidation and manage to maintain their credit—even though somewhat extended. There is in fact something particularly creditable about the coming back of a firm which has been in low water, and the name of Sopwith has always stood so high among aircraft people that there is a genuine personal feeling of satisfaction that the name should once more be reinstated among that of solvent firms.

No discredit has ever attached to the name of Sopwith and when the firm temporarily got into difficulties the general feeling was one of sympathy and never of blame to or suspicion of the directors. Whether the policy of the resuscitated firm will be to start building aircraft at once one cannot say. The Hawker Engineering Co., Ltd., the moving spirits in which are Mr. Fred Sigrist and Mr. V. W. Eyre, already occupies a goodly portion of what was formerly the Sopwith factory and are there engaged in reconditioning aeroplanes for the R.A.F. and also one believes in building some experimental aeroplanes. No information has been given as to the policy of the Hawker Company but there is still so much good-will attached to the name of Sopwith among aircraft people all over the world that one feels that there should be at any rate some kind of arrangement by which aircraft built by the Hawker Company in the Sopwith factory should be known as Sopwith aircraft. However, doubtless before very long the policy of the two firms will be made public and whatever that policy may be one wishes every possible success to the men who have stuck to a semi-submerged ship for so long and have at last succeeded in putting it once more on the active list.—

C. G. G.

R.A.F. INTELLIGENCE.

Appointments.

Air Ministry, Nov. 1st, 1922.

Grp/Capt. P F M. Fellowes, D.S.O, from H.Q., Middle East, to Constantinople Wing (Supernumerary), 22/9, for duty as O.C., R.A.F., Constantinople

S/Ldrs. D Blair, from H.Q.I.A. to H.Q., R.A.F., Iraq, 20/10; W. Sowrey, D.F.C. A.F.C., from R.A.F. Depot to No. 1 F.T.S., 1/11; F. N. Smartt, M.B., B.A., from R.A.F. Depot to No. 1 Group H.Q., 8/11; F. C. Jobson, from No. 7 Group H.Q. to R.A.F. Depot, 19/10.

F/Lts E. P. Hardman, D.F.C., from No. 30 Squadron (Iraq) to No. 84 Squadron (Iraq), for duty as Adjutant, 18/5; E. E. Deans, D.S.C., from No 2 Squadron (Detached Flight) (No. 12 Wing. Ireland) to School of Naval Co-operation and Aerial Navigation, 1/11; H. E. P. Wigglesworth, D.S.C., from Irish Flight to No. 2 Squadron (Detached Flight), 23/10; J. W. H. Steil, M.B., from H.Q.C.A. to School of Naval Co-operation and Aerial Navigation, 14/10; J. S. Holloway, from No. 267 Squadron to C. and M. Party, Bircham Newton, 25/9; W. R. S. Humphreys, A.F.C., from C. and M. Party, Bircham Newton, to No. 100 Squadron (Supernumerary), 16/10; T. C. Luke, M.C., from R.A.F. Depot to No. 56 Squadron, for duty as Adjutant, 1/11; C. McM. Laing, M.C., A.F.C., from C. and M. Party, Hawkinge, to No. 56 Squadron, 2/11; L. A. K. Butt, from No. 4 F.T.S.M.E. to No. 208 Squadron (Supernumerary), 26/9; J. P. Coleman, A.F.C., from Aircraft Depot, Egypt, to No. 56 Squadron (Detached Flight) (Constantinople Wing), 26/9; M. Moore, from H.Q.M.E. to H.Q., Constantinople Wing (Supernumerary), 26/9; R. P. M. Whitham, M.C., from H.Q.M.E. to H.Q., Constantinople Wing (Supernumerary), 22/9; P. J. Murphy, from Stores Depot, Egypt, to No. 208 Squadron (Supernumerary), 26/9; M. J. James, M.B.E., from Egyptian Group H.Q. to H.Q., Constantinople Wing (Supernumerary), 26/9; C. T. O'Neill, M.B., from No. 216 Squadron (M.E.) to No. 208 Squadron (Supernumerary), 26/9; T. F. N. Gerrard, D.S.C., from C.F.S. to No. 5 F.T.S., 21/10; H. H. Balfour, M.C., from C.F.S. to No. 10 Group H.Q., 1/11; C. A. E. I. Brownlee, M.B., from Air Pilotage School (Cadre) to No. 2 Squadron, 28/10; F. E. Johnson, from Research Laboratory and M.O.S.I. to R.A.F. Central Hospital, 23/10; R. G. J. McCullagh, from Research Laboratory and M.O.S.I. to Air Pilotage School (Cadre), 23/10; J. M. Maxwell (Q.M. Med.), from Army (R.A.M.C.) to Baghdad Combined Hospital (Iraq) on appointment to Permanent Commission as Quartermaster and F/Lt. (Medical) on transfer from Army, for duty as Q/M., 1/10; C. E. W. Foster, from No. 5 F.T.S. to R.A.F. Depot (Supernumerary), 27/10; H. A. Smith, M.C., from School of Naval Co-operation and Aerial Navigation (No. 230 Squadron) to No. 39 Squadron, 27/10; H. A. Whistler, D.S.O., D.F.C., from No. 2 F.T.S. to R.A.F. Cadet College (Flying Wing) (Cranwell), 27/10; K. B. Lloyd, A.F.C., from No. 2 F.T.S. to C.F.S., 27/10; J. J. Breen, from M.T. Repair Depot to Air Ministry (Dept. of A.M.P.) (D.D.O.), 8/11; W. Hodgson, O.B.E., from Air Ministry (Dept. of A.M.P.) (D.D.O.) to M.T. Repair Depot, 8/11. for duty as Adjutant; T. Fawdry, M.B.E., from R.A.F. Depot to Armament and Gunnery School, 1/11; H. E. Flavell, from R.A.F. Base, Leuchars, to Electrical and Wireless School, 31/10.

Col. Cuthbert Evans, C.B., C.M.G., D.S.O., to command H.Q., Palestine, on appointment as G.S.O.1, on attachment to R.A.F. until 26/6/24, 15/5.

Bt. Lt.-Col. William Elliott, C.B.E., D.S.O. (R.A.S.C.) to command H.Q., Palestine, 1/9, on appointment as D.A.D. Supplies and Transport, on attachment to the R.A.F. for two years.

Capt. A. H. Cope, D.S.O. (Devon Regt.), to command H.Q., Palestine, 15/5, on appointment as G.S.O.3. on attachment to the R.A.F. until 1/4/25.

49 Squadron Re-Union Dinner.

The 3rd re-union of 49 Squadron will take place on November 10th at 19.30 hours at Odennino's Restaurant, Regent Street. In order to swell the numbers and make the affair a complete success, members may bring with them one guest each. Full particulars may be obtained from Capt. G. Fox-Rule, 44, Craven Avenue, Ealing, W.5.

No. 8 Seaplane Squadron.

Seaplane Squadron No. 8, R.N.A.S., German East Africa, 1916-1918. The third annual dinner will be held at Gatti's, Strand, on December 1st. Grp/Capt. F. W. Bowhill, C.M.G., D.S.O., R.A.F., will be in the Chair. All officers and men of the R.N.A.S. in East Africa are cordially invited. Mufti. Write immediately to C. R. Lucate, 17, Garden Avenue, Mitcham, or C. S. Thompson, 25, Wharncliffe Gardens, N.W.8.

No. 6 Wing, R.N.A.S

The Annual Dinner of No. 6 Wing, R.N.A.S., Otranto, Italy, will be held at 19.00 hours on December 9th at the Connaught Rooms, Kingsway. Officers who have not yet received invitations should apply to the Secretary, Capt. A. Lloyd-Taylor, Compton, Highfield Road, Purley, Surrey.

The Late General Von Hoppner.

Those who can appreciate good work for work's sake even by an enemy will learn with deep regret of the death at the age of 63 of General von Höppner, who commanded the German Air Service from November, 1916, to the end of the war.

It will be remembered by many people who were in the R.F.C. that after the superiority of the German aviators over the Allies during the Fokker scourge at the end of 1915 and the beginning of 1916 the Royal Flying Corps and to some extent the French Service d'Aviation established at the time of the Battle of the Somme something very like a general command of the air, at any rate over our own lines if not over the enemy's areas. As the result of this, in November, 1916, General Von Höppner, a Cavalry Officer who had served through the Battle of the Somme as Chief of Staff to General Von Bülow, was appointed to command the Air Service.

He retained as his chief technical adviser Colonel Thomsen, who had previously been head of the German Air Service, and the result was surprisingly good. He entirely reorganised the equipment of the Air Force, concentrating almost entirely on mass production of Benz and Mercédès engines and limiting his aeroplanes to comparatively few types. Nevertheless at no time did he over-standardise, consequently the Germans were continually bringing out new types of aeroplanes and engines, as those of us who had to keep track of the different German types very well knew. It was General Von Höppner who was almost the first of very senior officers to realise the moral effect of bomb raids, especially night bomb raids, and their effect on diminishing the output of munitions.

Since the war General Von Höppner has published "Deutschlands Krieg in der Luft," a book which is already regarded as a very valuable contribution to military knowledge. In every way General Von Höppner is a very great loss to the Nation and the Imperial House which he served so well.—C. G. G.

PERSONAL NOTICES.

Death.

HARRICKS.—On October 24th, killed in action at Rania, Iraq, F/O. Frank S. Harricks, R.A.F., son of A. S. and L. Harricks, Eden Glen, Pavilion Road, Bournemouth.

Marriages

CAM—JAMIESON.—On October 19th, at Paulerspury, Walter Holcroft Cam, M.B., B.Ch., late M.O. i/c XI. Wing. R.A.F., to Ruth, widow of Major Gerald Jamieson, Indian Army, daughter of the late Rev. Frank Cobbold.

PATTERSON—SUTHERLAND.—On October 23rd, at Holy Trinity, Margate, by Canon Michael Pryor, D.D., Herbert Denny Patterson (late Hampshire Regt. and R.F.C.), fourth son of Mr. John Patterson, of Aldershot, to Margaret Cecille, second daughter of the late Mr. Cecil Watt Sutherland and Mrs. Sutherland. of "Laisden," Cornwall Gardens, Cliftonville, Margate.

WADHAM—TILLIE.—On October 21st, at St. John's Church, Smith's Square, Westminster, by the Rev John Jagoe, Nicholas Wyndham Wadham, F/Lt., R.A.F., eldest son of Mr and Mrs John Charles Wadham, of Shanklin, Isle of Wight, to Agnes Moira. elder daughter of the late William Tillie and Mrs. Tillie. of Elstow, Londonderry.

Births.

BALDWIN.—On October 28th, at "Murrayfield," Northwood, Middlesex, the wife of Wing/Cmdr. J. E. A. Baldwin, D.S.O., of a son (stillborn).

WALKER.—On October 30th, at Botley Rectory, Hampshire, to Dorothea (*née* McCully), wife of F/Lt. F. W. Walker, D.S.C., A.F.C., R.A.F.—a son.

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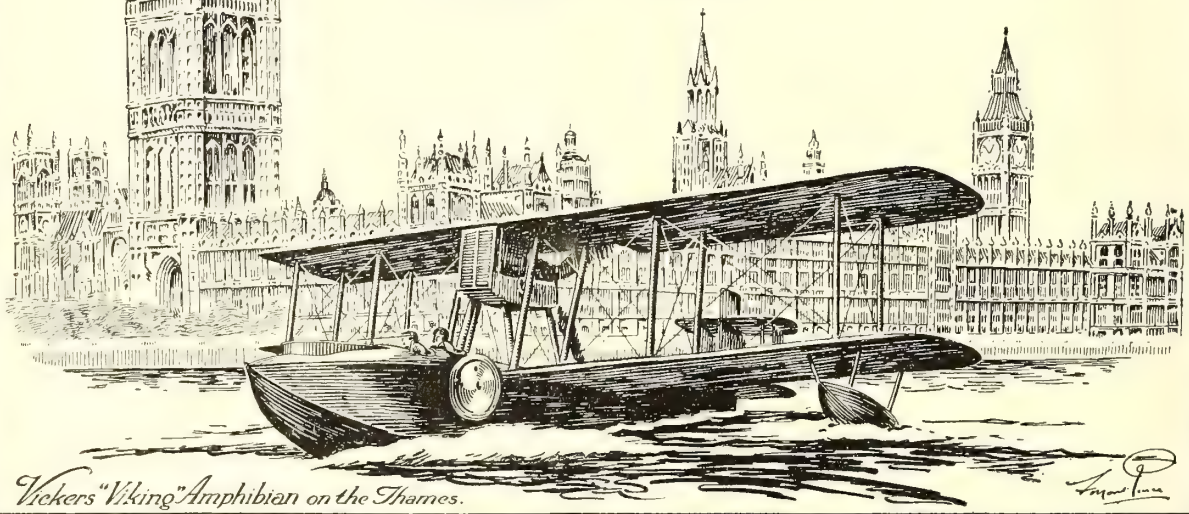
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THE WEEKLY COMMENTARY.

The very remarkably high speeds attained in the recent Pulitzer Trophy Race, and the flight of the winning machine over a properly-timed speed course, showing an average speed of just on 230 m.p.h., would seem to indicate that American designers now lead the world in the production of really high-speed machines.

The brief descriptions hereafter given of some of the competing machines, and the photographs of the Curtiss machines which entered—one of which won the race—should therefore be of great interest.

It is at once obvious that there are no startling innovations in design which account for the success of American designers of high-speed machines. The machines are mostly normal biplanes or cantilever monoplanes of quite standard types.

The only reason which can be advanced for the success of American efforts to put up the speed record is that American designers have been supported by the American Government in their efforts in this direction.

If the British Air Ministry would order from the leading British manufacturers 21 racing machines to compete for next year's Aerial Derby there can be very little doubt that one or other of the machines produced would put the American records into the background.

Possibly the Air Ministry can use its available funds to a better purpose than the construction of pure racing craft, but the British manufacturers cannot compete on equal terms with their American rivals in this particular matter without a little more tangible support of one kind or another. And it is well to remember that the excuse given by the U.S. Army and Navy for thus spending money on speed-craft is that the record-breaking aeroplane of to-day is the basis for the design of the war-service "pursuit-plane"—as they call it—of to-morrow. This is in fact much more than an excuse, it is a good and valid and valid reason.

THE PULITZER TROPHY RACE.

By far the most important aspect of this year's Pulitzer Trophy race, which took place on Saturday October 14th, was the large number of U.S. Army and Navy entries—in all, 21.

The Army entries were two Curtiss racers, two Loening racers, two Thomas-Morse racers, three Verville-Sperry racers, one Verville VCP-R (the winner of the 1920 Pulitzer Trophy), and six Thomas-Morse M.B.3's. The Navy entries include two Curtiss racers, one of which won the 1921 Pulitzer Trophy, one Curtiss triplane, one Navy "X" type, two BR racers, and one Thomas-Morse M.B.7.

The Curtiss Army racers are developments of the Curtiss Navy racer, which won last year's trophy, and are small biplanes fitted with 375 h.p. Curtiss D12 engines. The fuselage is extremely well streamlined and is made of Curtiss 2-ply spruce veneer, the total weight of the fuselage being only 127 lbs. The wings are of Curtiss 27 section, and are built up of five spars with Curtiss-ply covering.

In both the Curtiss Army racers and one of the Curtiss Navy machines the top wing embodies the radiator. The whole top plane from the interplane struts to the centre fuselage attachments is covered with a corrugated sheet brass surface under which the cooling water circulates. The other Curtiss Navy racer has two Lamblin radiators, one between each undercarriage vee.

The tail unit is of plywood construction, and has no external bracing. In the Army racers a single "I" strut is fitted on either side of the fuselage, whereas the Navy machines have "N" struts.

Specifications are as follows :—

Curtiss "Army."—Span, 19 ft.; length, 18 ft. 11 ins.; height, 7 ft. 10 ins.; chord, 3 ft. 10 ins.; stagger, 7½ ins.; gap, 3 ft. 10½ ins.; area, 138 sq. ft.; weight, empty, 1,454 lbs.; weight, loaded, 1,950 lbs.; dihedral, 0 deg.

Curtiss "Navy."—Span, 22 ft. 8 ins.; length, 21 ft. ⅓ in.; height, 8 ft. 11 ins.; chord, 4 ft.; stagger, 15 ins.; gap, 4 ft.; area, 168 sq. ft.; weight, empty, 1,735 lbs.; weight, loaded, 2,165 lbs.; dihedral, 2 deg. (bottom plane).

The Navy Curtiss triplane is in effect the Curtiss-Cox "Texas Wildcat" fitted with a 420 h.p. Curtiss C12 engine. It has the multi-spar wing construction, a 2-ply monocoque body, and it is fitted with flat radiators attached to the sides of the fuselage.

Specification :—Span, 20 ft.; length, 19 ft. 3 ins.; chord, top, 3 ft. 6 ins., middle, 3 ft., bottom, 3 ft.; gap, upper, 32 ins., lower, 31 ins.; height, 8 ft. 6 ins.; area, 179.5 sq. ft.; weight, empty, 1,936 lbs.; weight, loaded, 2,406 lbs.; dihedral, 2¾ deg. (lower plane); stagger, 12 ins.

The Booth B.R. racers are designed and built by Messrs. Booth and Thurston, of the Aerial Engineering Corporation, of Hammondsport, N.Y. They are both monoplanes of Junkerish type, and are fitted with 400 h.p. Wright H3 high compression engines. Retractable undercarriages are fitted, and one machine has wing radiators of a type similar to that on the Curtiss Army racers. The other machine has two Lamblin radiators, mounted one each in the angles formed by the sides of the fuselage and the top surface of the planes.

Specification :—Span, 28 ft. 1 in.; length, 21 ft. 1¾ in.; height, 6 ft. 4½ins.; chord, root, 6 ft., tip, 2 ft.; area, 104 sq. ft. wing section, Gottingen, 387; total weight, 2,020 lbs.

The Loening racers are thick-winged monoplanes fitted with the 600 h.p. Packard engines. The wings are set at the bottom of the fuselage, and the thick wing spars, which are continuous, act as a base for the engine mounting and the undercarriage, which consists of two streamline vees fitted well out on the wings. The axle is divided, and the inner ends are hinged under the fuselage, the outer ends carrying each one wheel, which is sprung with shock-absorber at the base of the vee.

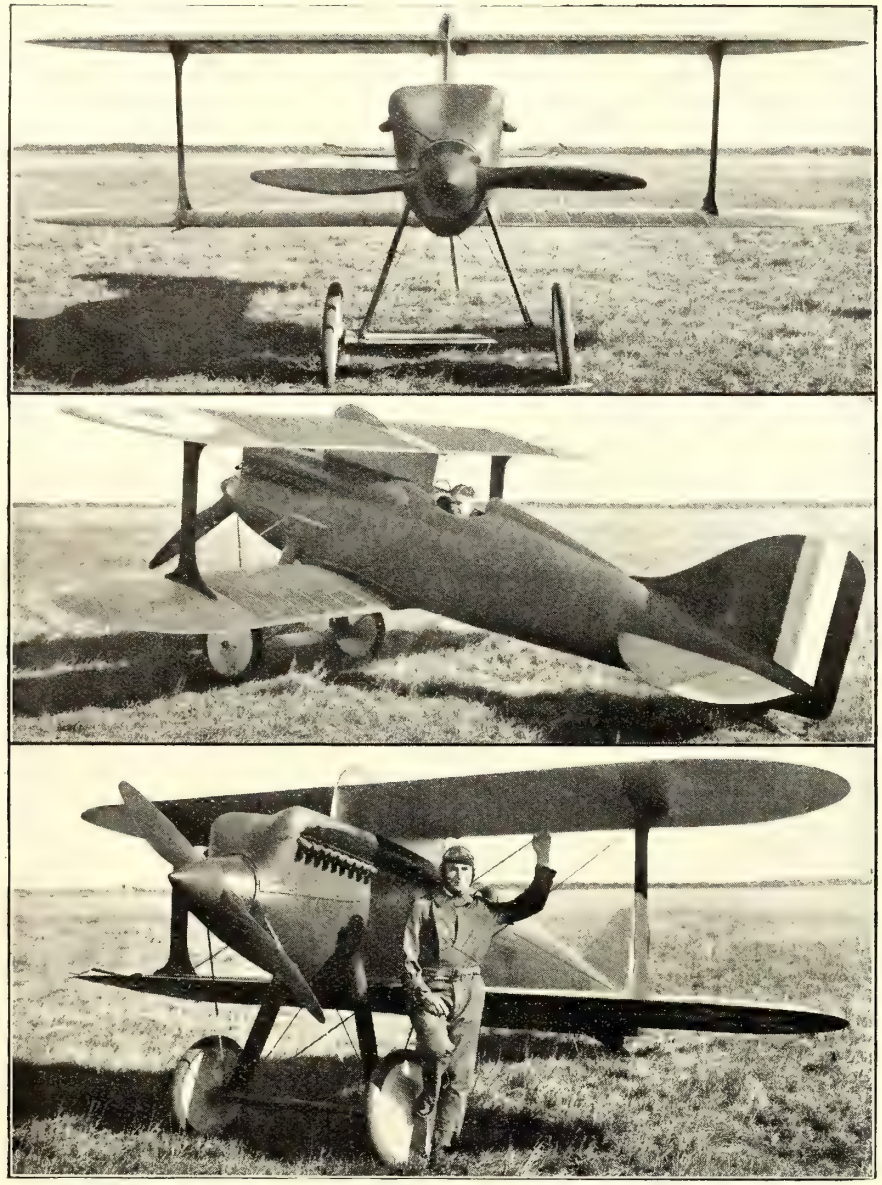
Specification :—Span, 27 ft.; length, 21 ft.; height, 7 ft.; area, 174 sq. ft.; weight, loaded, 2,700 lbs.; weight per h.p., 4.3 lbs.

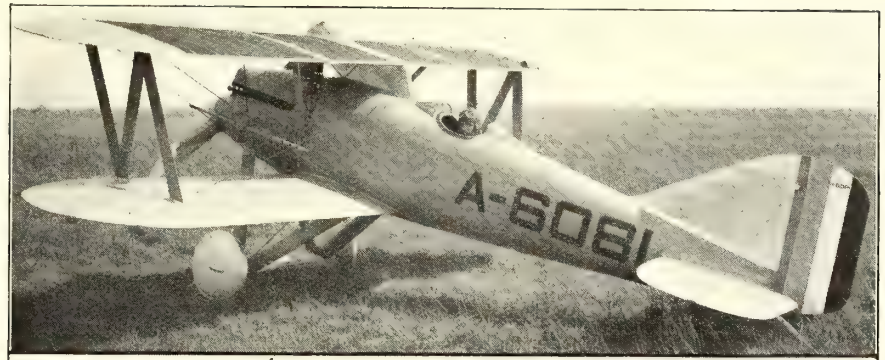
The Thomas-Morse T.M.22 is a development of the M.B.7 monoplane flown in last year's race by Captain Hartney, but in this case is entirely of metal construction, the wings, fuselage, tail-unit, etc., covered with corrugated sheet duralumin. Duralumin is also largely used in the internal construction. The engine, a 600 h.p. Packard, is mounted on steel tube engine bearers. Petrol tanks are carried in a hump in the wing over the fuselage, and a Lamblin radiator is mounted under the fuselage.

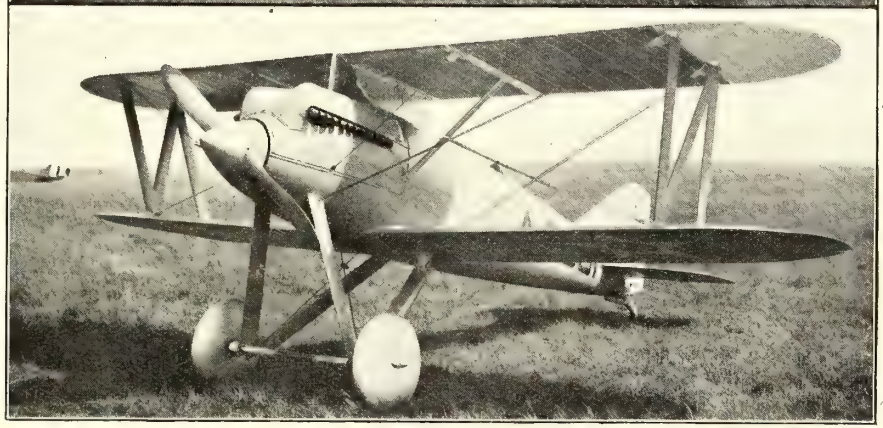
Specification :—Span, 29 ft.; length, 19 ft. 9 ins.; chord, 6 ft.; area, 172 sq. ft.; weight, loaded, 2,750 lbs.

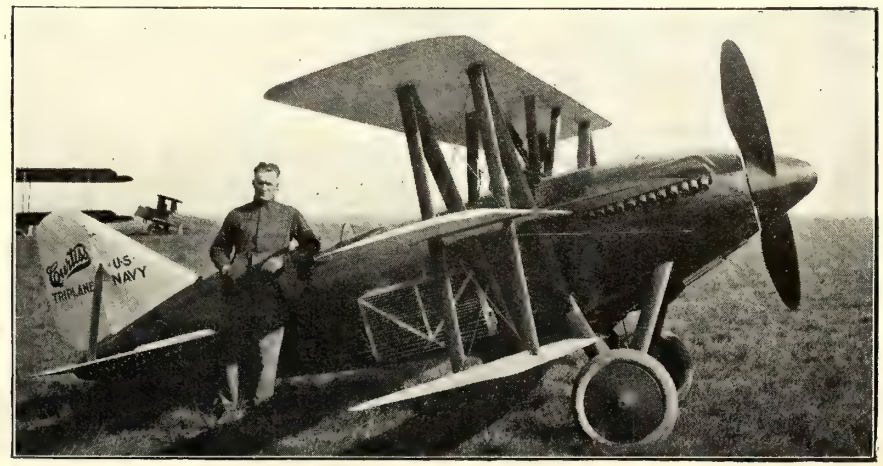
The Verville-Sperry racers are also internally braced "Junkers" type monoplanes. The fuselage and tail surfaces are constructed of steel tubing, and a retractable undercarriage is fitted. They are fitted with the 380 h.p. Wright special high compression engine. Lamblin oil and water radiators are mounted under the fuselage.

Specification :—Span, 32 ft. 4 ins.; length, 22 ft.; chord, 5 ft.; area, 150 sq. ft.; total weight, 2,225 lbs.









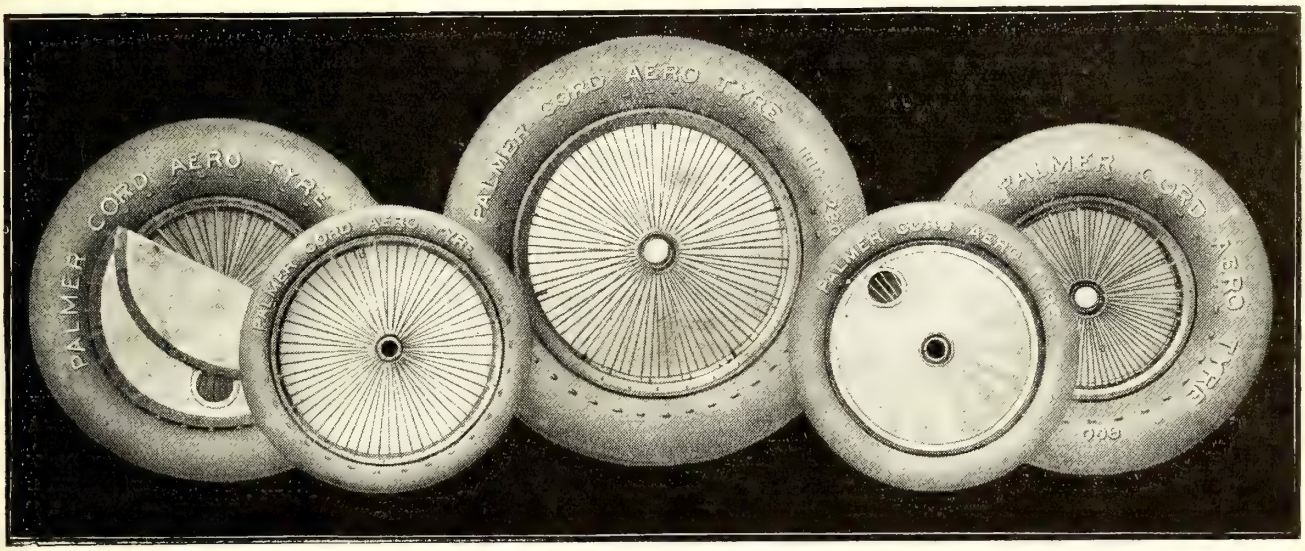
CURTISS AEROPLANES IN THE PULITZER TROPHY RACE.—Above the Curtiss Army Racer which won the Pulitzer Trophy. Lt. R. L. Maugham, who piloted, is seen in the lower photograph.

The machine in the upper two photographs on the right is the Curtiss Navy Racer—a modified version of last year's winner.

Below this is the Curtiss Navy Triplane—really the "Texas Wildcat," built for Mr. Cox to compete in the 1920 Gordon-Bennett race.

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STANDARD SIZES

Tyre Size	Wheel No.	Hub Length	Hub Bore	Track Line
		m/m	m/m	m/m
300×60	16	111.12	25.4	Central
,,	17	72.39	12.7	Central
450×60	30	89.	31.75	Central
,,	138	130.	38.09	Central
575×60	21	160.	28.	Central
,,	34	150.	31.75	104/46
,,	111	150.	38.09	104/46
600×75	21	160.	28.	Central
,,	34	150.	31.75	104/46
,,	111	150.	38.09	104/46
700×75	78	178.	44.45	132/46
,,	79	178.	44.45	Central
,,	100	178.	38.09	132/46
,,	101	178.	31.75	132/46
700×100	77	178.	44.45	132/46
,,	92	185.	55.	135/50
,,	95	185.	55.	Central
700×100	96	178.	55.	132/46
,,	99	178.	38.89	132/46
,,	112	150.	38.09	Central
650×125	119	178.	55.	132/46
750×125	77	178.	44.45	132/46
,,	92	185.	55.	135/50
,,	95	185.	55.	Central
,,	96	178.	55.	132/46
,,	99	178.	38.89	132/46
,,	112	150.	38.09	Central
800×150	82	185.	55.	135/50
,,	85	185.	55.	Central
,,	36*	185.	55.	135/50
,,	40	185.	60.32	135/50
,,	152*	185.	66.67	135/50
,,	163	185.	66.67	135/50
1000×150	131	220.	66.67	Central
,,	102	185.	55.	125/60
,,	141	250.	80.	Central
,,	201	185.	60.32	125/60
1000×150	209	185.	55.	Central
,,	210	185.	60.32	Central
1000×180	148	220.	80.	Central
,,	149	185.	55.	Central
,,	155	220.	66.67	Central
900×200	107	185.	55.	Central
,,	108	185.	55.	125/60
,,	128	220.	66.67	Central
,,	137	250.	80.	Central
,,	202	85.	60.32	Central
1100×220	134	220.	66.67	Central
,,	136	250.	80.	Central
1250×250	133	250.	80.	Central
,,	154	304.8	101.6	Central
1500×300	115	304.8	101.6	Central
,,	126	304.8	152.4	Central
1750×300	139	400.	152.4	Central

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U/N/NN.



THE SLOTTED WING.—The Handley Page "Hanley" biplane (Napier "Lion" engine) commonly known as the "Heinz" because of its "57 Varieties," more or less, of levers for the numerous gadgets which the Air Ministry experts insisted on fitting.

RESEARCH AT A PROFIT.

When more than 20 years ago Rudge-Whitworth, Ltd., instituted at their works a laboratory for research into various problems of metallurgy and the like quite a large number of "practical" men regarded the venture as either a joke or as a sign that the directors and managers of that firm were suffering from some form of mental derangement.

When to-day one asks for the encouragement of research be it in aeronautics or in other branches of science one finds that these same "practical" gentlemen—or their descendants—still exist and still hold the same views.

The Rudge-Whitworth research laboratories have long ago proved themselves to be a profitable undertaking. Not only have they justified themselves time after time by the solution of problems which have cheapened production and improved the quality of the Rudge wares, but they actually make a trading profit from the sale of some of the many ingenious instruments and other products for which they are responsible.

Some part of the story of these laboratories and of the work they have carried out is contained in a very interesting little booklet which has just been issued. This bears the title "Rudge-Whitworth Research Laboratories, 1901-1922," and can be obtained on application to "The Research Laboratory," Rudge-Whitworth, Ltd., Sparkhill, Birmingham.

To those who believe in the value of research this booklet will certainly prove interesting. Its perusal may have no effect on the others—but it can do them no harm.

A DUTCH AMPHIBIAN.

News has been received from Holland to the effect that a Fokker amphibian machine has been tested successfully. The machine is a biplane with a 450 h.p. Napier "Lion" engine but no further details are yet available. The Fokker amphibian has been built for the Dutch Air Service.

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THE ROYAL AERONAUTICAL SOCIETY.

The Council of the Royal Aeronautical Society have decided to institute forthwith from the funds of the R.38 Memorial Research Fund an annual prize for a technical paper on Airships. The regulations covering the award of this prize are given below.

R.38 Memorial Prize :—Regulations.

From the income of the above Fund a sum of twenty-five guineas will be offered annually as a prize for the best paper received by the Royal Aeronautical Society, on some subject of a technical nature in the science of Aeronautics. Other things being equal, preference will be given to papers which relate to Airships.

The prize is open to international competition. The Royal Aeronautical Society retain the right to withhold the prize in any year, if it is considered that no paper is of sufficient merit to justify an award.

Intending competitors should send their names to the Secretary of the Royal Aeronautical Society, 7, Albemarle Street, London, W.1, on or before December 31st of each year, with such information in regard to the projected scope of their papers as will enable arrangements to be made for their examination. The closing date for the receipt of papers will be March 31st in each year.

Papers should in all cases be typed, and a copy should be retained by the author, as the Society can take no responsibility for the loss of copies submitted to it.

Successful papers will become the absolute property of the Society, and will in most instances be published in the Society's Journal. In regard to unsuccessful papers, the Society retains the right of publication in its Journal, but in each case will notify the author, shortly after the award, whether it intends to exercise this right : if not, the author will be free to publish elsewhere.

THE METAL CONSTRUCTION OF AEROPLANES.

On Thursday, October 19th, Mr. J. D. North read a paper before the Royal Aeronautical Society entitled "The Case for Metal Construction." In view of the large amount of experimental work in regard to steel construction for which Mr. North has been responsible during his connection with Boulton and Paul Ltd., and of the very successful results with which that work has been attended, Mr. North is obviously very well qualified to deal with so complex and so highly controversial a subject. In fact Mr. North in this paper very successfully avoided giving any grounds for acute controversy. He dealt with the general grounds on which one may reasonably expect metal structures to prove superior to the usual composite timber and metal type now so general. He explained the nature of the very complex problems which have to be solved before the design of all metal aircraft can be regarded as established on a sound scientific basis, but pointed out that even to-day the gap between theory and practice could be bridged by the art of the engineer.

The paper is one of those which cannot usefully be abbreviated, and space wherein to reproduce it in full is not available. One can therefore only recommend all those who are seriously interested in the subject to secure a copy of the Journal of the Society which will contain this paper as soon as it is issued.

AMERICA'S CIVIL FLYING.

The Aeromarine Airways have lately furnished the Bureau of Aeronautics, Navy Department, with their second half-yearly report on the operations of their flying-boats on the commercial transportation of passengers and merchandise.

The report, which covers the period Nov. 15th, 1921—March 15th, 1922, gives the following figures :

No. of flights :—Key West—Havana, 171; Key West—Miami, 49; Miami—Bimini, 91; Miami—Nassau, 49; Miami—Palm Beach, 16; Miscellaneous, 359. Total number of flights :—735. Five flights were abandoned owing to unfavourable weather, the boats in these cases returning to the starting points.

These figures, added to those of the first annual report submitted on Nov. 12th, 1921, show that in the operations of the Aeromarine Airways, flying-boats have flown an aggregate distance of over 150,000 miles and have carried a total of 10,700 passengers without a single mishap.

The types of flying-boats used in these operations are the 11-passenger F.5L., the 5-passenger H.S.2L. and the 3-seater Aeromarine model 50.

THE EUROPEAN DURATION RECORD.

Further details are now available concerning the remarkable performance put up by MM. Bossoutrot and Drouhin with the Goliath Farman when on October 15th and 16th they beat the present official duration record by remaining in the air for 34 hours 15 mins. 7-1/5 secs. It is much to be regretted that they did not put up this fine performance before Macready and Kelly raised the figure to 35 hours 16 mins. 30 secs. It is, however, possible that the Bossoutrot-Drouhin claim may be put in before the Macready-Kelly claim and so may find its way onto the Record Book, though strictly speaking the Macready-Kelly flight, being of an earlier date, should prevent the French performance from being homologated.

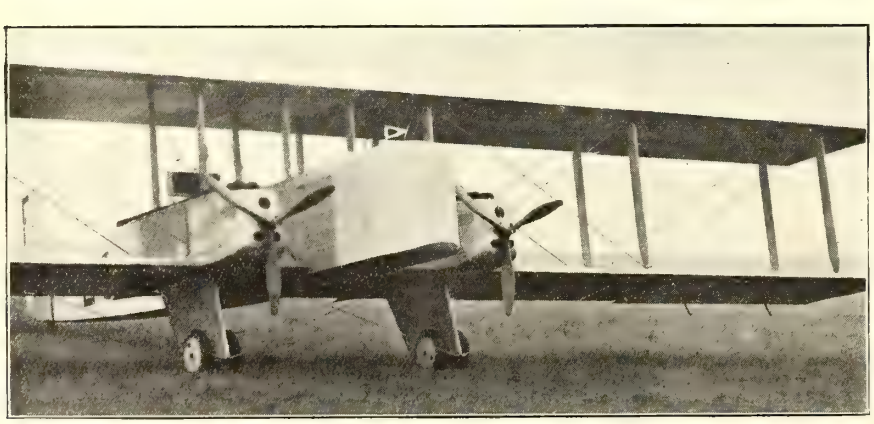
The machine used was a standard Goliath of the type familiar on the London-Paris route. It was driven by two Renault engines of 350 h.p. each. It and its engines are old familiar mechanisms of proved reliability, but there is one feature about the flight which is of very real importance to the progress of aviation, and that is the fact that the engines were fitted with metal airscrews made by Rubery Owen and Co. of Darlaston under Leitner Patents to the design of Dr. Watts, for the Metal Airscrew Co. Ltd. of Regent House, Kingsway, W.C.2., the agents for whom in France are the Lumière Propeller Co., the director of which is M. Louis de Monge.

Despite the numerous fine performances that have been put up by metal airscrews there seems to be a very strong prejudice against them among the so-called experts in the Air Ministry although the pilots of the R.A.F., especially those in Irak and India, are crying out for metal screws which are neither liable to be disintegrated by the climate nor eaten by white ants and other herbivoræ. The experts have theories about the effect of vibration on the metal and the rupture of joints and various other quaint things analogous to the many subjects about which the scientific mind has imaginings long after practical men have proved the futility of its ideas.

The opinion of the practical man in a case like this is certainly better worth having than that of many scientists, consequently it is worth while quoting M. Bossoutrot who said, "We have not been in the least troubled by any sort of vibration, thanks to our metal airscrews, which are really astonishing." That seemingly was the first thing which M. Bossoutrot said after landing, for it was only afterwards that he began to tell the reporters the actual story of the flight.

It seems possible that by the time the duration record has reached something like seven days and after metal airscrews have stood bench tests of, say, a month at 5,000 r.p.m. when purposely out of balance, the Air Ministry experts may begin to consider them seriously.

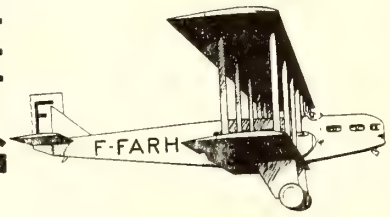
As regards the Leitner propellers in particular, it is well to note that they are not only the first metal propellers that have been flown of modern type but also the first that have been flown on regular commercial service, to wit in the cross-Channel service, and that they are now the first to have beaten any sort of aeroplane record.



THE EUROPEAN DURATION RECORD HOLDER.—The Farman "Goliath" (Two 350 H.P. Renault engines) on which MM. Bossoutrot and Drouhin set up a non-stop record of 34 hours 14 mins. The interesting point about the performance from the English point of view is that the machine was fitted with Leitner-Watts Metal Airscrews, which are thus the first metal screws to achieve a World's Record, in this case of the most arduous possible nature.

F-ADAY F-A
F-ADC^
F-A
F-A
F-A
F-A
F-A
F-A
F-FA
F-FHI
F-UHM
F-YHM
F-ADAI
F-ADAU
F-ADBM
F-ADBP
F-ADAE
F-ADAF
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F-ADBI
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F-ACMB
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ACME
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C.M.A. Air Lines is the British title of the Compagnie des Messageries Aériennes, whose head office is at 2, Rue Galilée, Paris. The Company was originally founded early in 1919, by M. Louis Breguet, for the transport of goods from Paris to Lille, the first commercial aviation having been so much disturbed by the European War. This line, which was soon extended to Brussels and service in the world, was the first commercial aviation line from Paris to Brussels has been maintained by the Company ever since.
In September, 1919, a service between London and Paris was inaugurated in conjunction with Handley Page Transport, Ltd. This was originally operated three times a week each way, but later, when the two Companies separated, a daily service was commenced, which has now been extended to a thrice daily service.
By an arrangement with the Compagnie Générale Transatlantique a service is run to connect with the arrival and departure of this Company's sailings between Le Havre and New York. This is the first occasion on which a large shipping company has recognised the necessity of using commercial aviation in its transport policy.
The Company's service has now reduced the time of transit between London and Paris to two and a-half hours; between London and Le Touquet to one and a-quarter hours; between Paris and Le Touquet to one and a-quarter hours; between Paris and Brussels to two hours and between Brussels and Amsterdam to two hours. A line has been inaugurated to run direct from London to Marseilles, calling at Paris and Lyons and connecting with the Steamship Lines to India and the East. This brings Marseilles within eight hours' reach of London and Lyons within six and a-half hours' reach of London.
The C.M.A. Passenger Service is maintained by twin tractor Farman Goliath Biplanes, fitted with two 370-h.p. Renault Engines and with a seating capacity for 12 passengers, pilot and mechanic. This machine has a wing-span of 92 ft., a length of 49 ft. 6 in. and a height of 16 ft. Its cruising speed is 93 m.p.h. The freight, mail and newspaper services utilise the smaller type of single-engined Spad and Breguet.
The Compagnie des Messageries Aériennes is an association of aircraft constructors for the study and application of Aerial Transport, and among its Board of Directors appear the well-known names of Messrs. Herriot, Breguet, Caudron, Farman, Morane, Luquet de St. Germain and Renault.—*Extract from R.A.F. Year Book.*



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AIR LINE ARRIVALS AND DEPARTURES.

ABBREVIATIONS:—A.D.—Aircraft Disposal Co. B.A. Berkshire Aviation Co. B.C.—Bristol Aeroplane Co. C.A.—Department of Civil Aviation. D.A.—Daimler Airway. D.H.—De Havilland Aircraft Co. G.E.—Compagnie des Grands Express Aeriens. H.P.—Handley Page Transport Ltd. I.L.—Instone Air Line. K.L.—Koninklijke Luchtvaart Maatschappij. L.A.—Leatherhead Aviation Services. M.A.—Messageries Aeriennes. M.W.—Marconi Wireless Telegraph Co. Ltd. P.O.—Privately owned. W.A.—Westland Aircraft. S.F.—Surrey Flying Services. S.N.—Belgian transport company.

ANALYSIS OF FIGURES.

FOR WEEK ENDING NOV. 5th

Number of trips made during week.—I.L. 7, H.P. 7, D.A. 11, M.A. 9, G.E. 4, K.L. 12, D.H. 2

Number of passengers carried.—I.L. 27, H.P. 63, D.A. 66, M.A. 12, G.E. 25, K.L. 14, D.H. 3.

Total number of trips by British machines: 27, carrying 159 passengers.

Total number of trips by foreign machines: 25, carrying 51 passengers

Trips per day.—Monday, 4; Tuesday, 11; Wednesday, 3; Thursday, 14; Friday, 8; Saturday, 10; Sunday, 2.

STATISTICS.

Machines, 52; Passengers, 210; Crews, 78; Total Personnel, 288.

Corresponding week last year:—

Machines, 43; Passengers, 112; Crews, 59; Total Personnel, 171.

Corresponding week, 1920:—

Machines, 64; Passengers, 128; Crews, 85; Total Personnel, 213.

NOTES OF THE WEEK.

The weather last week was horrid, the constant rain and wind interfered with the regular air-lines to a considerable extent and on Monday and Wednesday the Amsterdam route was the only one on which machines got through.

It is said the Instone Air Line have decided next year to use twin-engined machines. It is alleged that these will be known as the "Instone, Type C," that the designs have been got out to the specification of the Instone Air Line by the firm of Ogilvie & Partners, and that they will be built by Handley Page Ltd. It is expected that the new machine will be somewhat similar to the W.8b.

Meanwhile Handley Page Transport's original W.8 has returned to Cricklewood where it is being fitted with Rolls-Royce "Eagle IXs."

The Daimler Airway unfortunately had trouble with a machine on Friday. Mr. Robertson, coming down from Manchester on a D.H.34—G-EBBU—, when nearing London ran into a thick fog and was compelled to land near Harrow. As he was landing with visibility Nil he found a row of trees in front. He turned quickly to avoid these but hit them with his right wing and damaged the machine somewhat severely. He had eight passengers but none of these were hurt, in fact three of them calmly stepped out of the door suitcases in hand thinking that they had arrived at Croydon and that this was the normal method of descent.

The C.M.A. Air Line now has its Winter services in full swing and carries the bulk of the goods travelling on the Paris route. M. Grosfils grows Couëly happier and happier as the regularity and reliability of the C.M.A. Service becomes more and more proved. He talks airily of a service to Biskra in January for the Gliding Meeting.

The Surrey Flying Services are out nearly every day joy-riding and the passengers for joy-rides are still arriving in quantity.

There is much speculation as to who is the personnel behind the mysterious "pirate" air line and connection with it has been attributed to almost everyone on the Aerodrome. So far however one believes all the shots have gone wide of the mark.—G. D.

Croydon Aerodrome Dinner.

On Monday of this week the London Terminal Aerodrome held its second Annual Dinner. The function this year took place in the banqueting hall of the Greyhound at Croydon. Maj.-Gen. Sir Sefton Brancker, Director of Civil Aviation, was in the Chair and the attendance was practically double that of last year. The theme of General Brancker's speech was that brevity is the soul of wit and he made a confession of faith in Civil Aviation and exhorted all other speakers to be as brief as possible in view of the somewhat lengthy concert programme. One of the items down on this programme was a conjuring performance by Mr. Handley Page "assisted by Colonel Bristow." This however did not take place partly owing to the fact that Col. Bristow's name was spelt wrongly on the programme and partly owing to the fact that he was in Bristol at the time and Mr. Handley Page with his retiring nature could not be persuaded to face the World alone. The proceedings closely followed the stage directions on the eating portion of the menu which possibly accounts for the brevity of these notes.

The staff work and organisation was, as last year, excellently carried out by Mr. Coleman and the musical programme was arranged by Mr. Thompson. One might however suggest that at a gathering of that merry nature songs with a rousing chorus go better than anything else. Several really clever turns were wasted, not exactly on the desert air but, shall we say?, on the bad visibility

In the course of a trick by a conjurer copies of THE AEROPLANE were used. That of course always has been the paper used by wise people when they have desired to bring off something really clever.—C. G. D.

Uttoxeter.

The Berkshire Aviation Co., Ltd., have just finished a highly successful visit here. Despite the extreme cold and gales of wind there has been no shortage of passengers. One Sunday, when the wind varied from 50 to 70 miles an hour, flying was carried on as usual, no fewer than 54 passengers being carried.

Now that winter is drawing on, and fires have to be made on the aerodromes, the chairman, managing directors, secretary, advance agent, and other members of the troupe are busy wood-cutting and fire-making, while the pilot, closely followed by Wilfred, fetches jugs of hot tea!

Lichfield.

The B.A. Co., Ltd., duly arrived here on the date advertised after an exciting trip from Uttoxeter. Fog came on, and the visibility became so bad that the flight was made at a height of only 40 feet. On reaching Lichfield it was practically dark.

A good start has been made, 30 passengers having been carried on Saturday and 35 on Sunday in torrents of rain.

THE CO-OPTIMISTS.

When one comes to reckon up the good things which resulted from the comparatively recent war, not the least of them is the fact that the formation of the R.A.F. caused the meeting of Capt. Clifford Whitley, Capt. Archibald de Bear and Capt. Clifford Perry, better known as "Laddie Cliff." For it is that combination of erstwhile officers of the R.A.F. that conceived the Co-optimists.

After a successful year in London the Co-optimists made a brief tour of the provinces, and are now installed at the Prince of Wales' Theatre.

The whole programme is new with the exception of "The Ghost of a Chance," which is too good to be scrapped, as it only had quite a short run in the last programme and "If Winter Comes," which Mr. Melville Gideon sings nightly "by special request."

Miss Betty Chester is back again so that the company is once again at full strength. The general "make up" of the programme is much the same as before and while most numbers are reminiscent of their predecessors they are in many cases equally good or better.

The programme opens with the famous "Bow-wow" introduction and chorus brought up to date after which Mr. Davy Burnaby loses the toss as usual and has to sing the first song while the late comers are banging down their seats, though, as he points out, he does not really mind this as each bang means another twelve and sixpence.

Mr. Stanley Holloway also late of the R.A.F. then sings a duet with Miss Elsa MacFarlane who is shortly to become Mrs. Clifford Whitley. Miss Betty Chester has a wonderfully catchy song called "Shopping" in which her invitation, "Who'll come gliding with me," seemed familiar, and doubtless would have caused Mr. Fokker to remark that there was "not enough vind."

"The Co-optimeisters" is a number on the principle of "The Green Grass Grew All Round," which deals accumulatively with the "nerve in the bone in the tail of the whale in the hole at the bottom of the sea."

The biggest hit of the evening however is a song by Melville Gideon in the best "Amapu" and "Wun Lung Tu" style called "The Wild Men of Borneo" which has a most haunting tune.

Miss MacFarlane's "Dream Days" is one of the gems of the evening and "Church on Sunday" for Miss Monkman and Mr. Cliff is quite up to the standard of "M'Yes M'No."

Mr. Gilbert Childs has a wonderful mock-patriotic song called "Don't Ever Scrap the British Navy" in which he explains fairly accurately the real uses of that swarm of beavers and doubtless in due course the editor will devote a whole leader to the song.

The finale of the first half ends with legal action being taken by Davy Burnaby with the ultimate object of persuading Melville Gideon to "Slay it with music" which he does to considerable advantage. This has in it a really bright idea which is capable of expansion.

The best two items in the second half are Laddie Cliff's "Olga Petrovotski" and Gilbert Childs as the "Vile and Villainous Vamp." The opening chorus of this half is novel. During a catchy song by Miss Betty Chester decidedly unflattering cinematograph pictures of the whole company are shown. If only these photographs were better the effect would be excellent. Mr. Melville Gideon at the

piano has an exceptionally tuneful number called "When the Sun Goes Down.

The two weakest items on the programme are Mr. Laddie Cliff's two songs "Tampa Bay" and "Get Happy" which are very poor compared with "Coal Black Mammy," "The Old Nigger," "Meandrin'," and "Homeward Bound." The latter was never given a fair run in the last programme and should be revived if nothing better can be found. The whole company works the whole time with a will but one would like to see at least one number by Miss Babs Valerie. She has been the "chorus" now for over a year and certainly deserves promotion.

"The Co-optimists" is just the very show to which to go on after squadron re-union dinner and other R.A.F. social events.—G. D.

A D.S.O. CANDIDATE.

The *Morning Post* of November 2nd states with reference to the Spelthorne Division that there is a Labour candidate in the field in the person of Maj. A. G. Church, D.S.O., B.Sc., secretary of the National Union of Scientific Workers. He was a schoolmaster and lecturer in science before the war. He served in the R.G.A. and the R.A.F., and did good work in ballooning. He is also joint secretary of the Trade Union side of the Engineering Joint Industrial Council.

The Conservative majority at the last election was 8,862.

THE SPREAD OF HEROISM.

From the *Daily Mail*, November 3rd :—"Election Items. Aerial Canvass.—Col. H. C. Woodcock, Conservative candidate for Thornbury division of Gloucestershire, will fly over his constituency on Saturday low enough to be able to wave to teams and spectators at football matches."

[One would remind the candidate that this is not the close season for woodcocks whether of the military type or not.]

AJAX MK. III.

From the *Daily Mail* of November 3rd :—"'Plane Hit by Lightning.—Lightning burned a huge hole in one wing of a U.S. Army aeroplane flying through a storm from Wichita, Kansas, to Post Field, Fort Gill, Oklahoma, according to an official statement. The machine heeled over and got into a spin, but the pilot recovered control and landed in a field."

[Certain people in Civil Aviation are said to be very conc(H)erned about this.]

THE COMPLEAT COSMOPOLITAN.

Mynheer Anthony Fokker was born a Dutchman. During the late War he threw in his lot with Germany, became naturalised, and was known as Herr Fokker. After the War he again became a Dutchman; that is to say, a Double Dutchman, and was once more Mynheer Fokker. When in England he likes to be known as Mister Fokker, and Mr. Perrin, when introducing him at the Seaford lecture, called him Monsieur Fokker. Now, it has been stated in the Press that owing to further business reasons he is to become a naturalised American citizen, so he may be known as Mr. Anthony G. Fokker, of Chicago, Ill.

This cosmopolitanism opens up possibilities in case of more big business deals or wars coming along. For instance, there may be Mr. Atty O'Fokker, the great Irish patriot, or again Angus MacFokker, from Scotland. Or the ex-Premier may find a compatriot in Tony Morgan ap Fokker.

Who knows that when the great Bolshevistic movement sweeps Europe we may not see Comrade Fokkorski, from Moscow, or farther south, in Turkey, Fokker Pasha, while the R.A.F. in Mespot may be bombed by the machines of the Sheik Fokker.

In North America we may hear of the doings of Big Chief Fokker from the Indian Reserve, of Elder Fokker from Salt Lake City.

Recognising his extraordinary mobility we may even see a bull fight in Spain featuring the great toreador, Señor Don Anton Fokker, or, judging by the unmistakable quality of his voice, Italy may welcome Signor Antonio Fokkeri, the great operatic singer. Or perhaps the white smoke issuing from the chimney of the Vatican may proclaim to the world the election of His Holiness Pope Antonius DVII.—G. D.

THE CAMBRIDGE UNIVERSITY AERONAUTICAL SOCIETY.

The following fixtures are announced by the Cambridge University Aeronautical Society for the Michaelmas Term, 1922 :—November 8th, Lt.-Col. W. A. Bristow, "Commercial Aviation." November 15th, Mr. Flemming Williams, "Gliders." November 22nd, Air Vice-Marshal P. W. Game, "Organisation." November 29th, Grp/Capt. F. W. Bowhill, C.M.G., "Royal Air Force Operations in Somaliland, 1919." All meetings will begin at 8.30 p.m.



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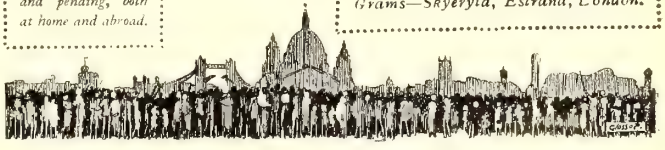
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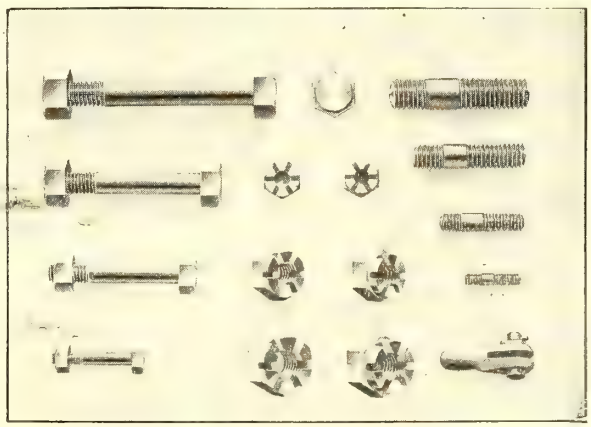
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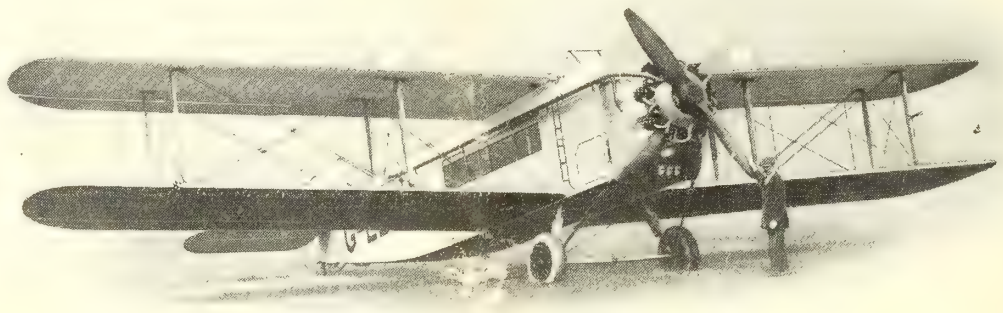
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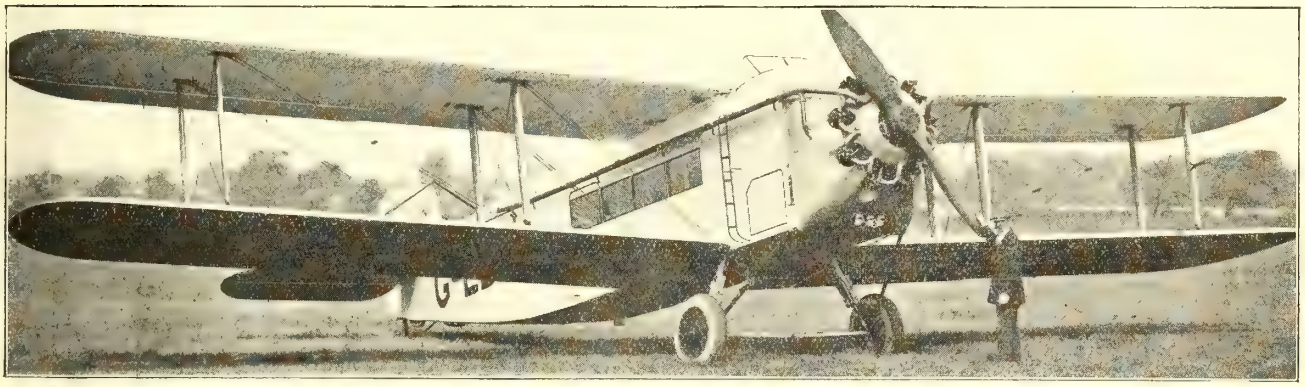
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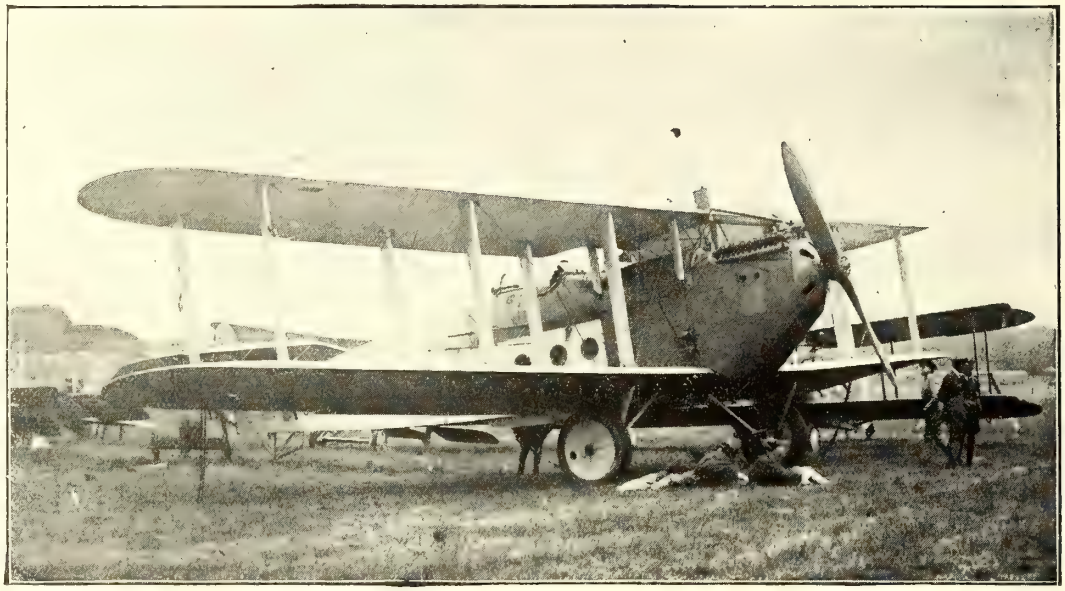
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ON THE GLIDING EPIDEMIC.

It would seem that the gliding epidemic is spreading both upwards and downwards. One hears of great schemes at the Air Ministry for the establishment of a regular soaring experimental station, possibly on the Itford-Firle ridge. It is also a fact that the certain officers who have already shown a practical interest in gliding have been appointed to the Central Flying School at Upavon with the idea of building experimental soaring machines in the workshops there and of testing them on the veriegated contours of Salisbury Plain.

The soaring from Firle Beacon proved fairly conclusively that it does not matter whether the wind comes from higher or lower ground so long as it has a fair way to a hill face, so the fact that Salisbury Plain is all inland does not count, and the fact that the Plain itself lies higher than the surrounding country is probably in its favour as it is more likely to have a wind than is low-lying land. Moreover the irregular contour of the country, which is presumably called a Plain on the *lucus a non lucendo* principle because no portion of it is flat, will probably produce gusty winds when a clean slope leading to the sea would have a perfectly steady breeze. Which is all to the good.

What Does the Wind Do?

Some ignorant and superior people have expressed publicly the opinion that there is nothing in gliding and that it cannot help the progress of aviation. Among them is one at least of the pioneers of aviation who wrote a peculiarly silly letter to this paper, which out of respect for his reputation in the past one refrains from publishing in view of the fact that he has been so much out of touch with modern aeronautical thought for several years that there is some excuse for his ignorance.

There are in fact hundreds of problems which may be solved by exxperiments with gliders which cannot be tackled as well by any other means. For example there is that very simple question as to what the wind actually does when it hits a hill face. If the face is very steep, as on the North side of Firle Beacon does a strong wind produce a shallow but strong upward current because the force of the wind squeezes the air tight against the face, or does it make a deeper current than the same wind would make against a gentler slope?

One's German friends say that on the Wasserkuppe better soaring is done over the side with the gentle slope than over the side with the abrupt slope. But these results may be due to the machines as much as to the wind. It is possible for example that Mr. Rayuham's highly efficient Handasyde monoplane, with improved controls, might soar well over a gentle slope when the Peyret tandem monoplane would only glide at a bad angle. This aspect of the question is discussed by Captain Sayers in his own section of THE AEROPLANE this week, so one will not trespass on his preserves. But one does want to know what happens to the wind.

A Poser.

Some years before the War after a meeting of the Aeronautical Society (not then Royal) one asked a distinguished meteorologist who had been lecturing learnedly a few simple questions on similar points and one found that his ignorance was amazing. The particular question which stumped him was this :—Suppose a wind is blowing direct against a vertical cliff and is producing as has been shown a strong upward current with a curl-over wave which causes an area of dead air a few yards back from the edge of the cliff and a reversed current from the land towards the edge of the cliff still further back. And suppose a very strong gust comes along and hits the air which is squirting up the cliff. Does the force of that gust squirt the up-current still higher and increase the size of the curl-over wave, or does its force cut off the top of the up-current and beat down the curl-over?

One regrets to say that the distinguished meteorologist had no information on the matter. And so far as one can discover our distinguished meteorologists of to-day are no better informed. Unfortunately one forgot to put this simple question to our friend the Gust-Guesser at Itford. He, being unusually knowledgeable, might have known. But certainly most of his species do not. The answer is better worth having to-day than it was ten years ago because we are likely to have ere long quite a crop of small low-powered aeroplanes developed from gliders, and the pilots of such machines will be vastly interested in knowing just what the wind does.

Soaring in India.

In this connection it is of interest to note that the first practical use of soaring has been made in India, whence—thanks to Dr. Hankin and Capt. Wildeblood—came the first British observations of soaring birds. One has had the pleasure of disagreeing heartily from both these gentlemen, especially Dr. Hankin who to one's own way of thinking took an immense amount of trouble to draw entirely wrong conclusions from extremely accurate observations, and imagined the existence of a new force which enabled birds to soar when their operations can be explained by the most simple mechanical processes. Nevertheless his observations on birds like his observations on "The Mental Limitations of the Expert" (in which he draws equally erroneous conclusions from equally accurate observations) are of very great value indeed.

A friend lately returned from India told one recently how certain R.A.F. pilots have found soaring of practical use on active service. As everybody concerned with aviation knew a year or more ago, and as the newspapers discovered with much emotion some few weeks ago, the R.A.F in India have very few flyable aeroplanes and those few are of the kind gracefully described as unutterable duds. And on these duds the R.A.F have had to cross high hills to bomb troublesome Aryan brethren on the far side.

Now some of these hills are so high that in order to get over them the machines (said to be Bristol "Fighters" of the 1916-17 vintage) had to climb and climb and climb in circles over a wide red-hot valley to get high enough to cross the ridge. And by the time they had got their height they had used so much petrol that it was a gamble whether the machines could get to their objective and back. Then some bright lad thought of going to work a different way.

Instead of trying to climb when over the valley he flew across it till close to the cliff-like face of the hills against which the wind was blowing. There he turned his tail to the cliff, throttled down till he just had enough way on the machine to keep out from the cliff and under proper control, and there he sat peacefully on the up-current which in a few minutes lifted him like a balloon well over the top of the ridge. After that it became quite easy to cross the divide and still have plenty of petrol in hand.

Gust-Soaring in Japan.

A still more peculiar story of the intelligent use of wind currents comes from Japan. One is told that Mr. Lankester Parker, erstwhile of Windermere, later R.N.A.S., later still of Short Bros. and then in Japan for his firm, made a bet that he would get a fully-loaded F.4, twin-engined flying-boat, over the top of Fujiyama—which if one may believe all Japanese pictures is the only mountain in Japan. Now the top of Fuji is between 1,000 and 2,000 feet higher than was the ceiling of that F-boat, and long odds were easy.

It seems that Mr. Parker instead of flying to the windward side of the hill to look for an up-current flew up the lee side where it was good and gusty and used each gust as it came along to give the old boat an extra kick upwards till finally he was lifted several hundred of feet over the top. This feat is remarkable as showing the effects of gusts.

Fuji is a conical hill. Wind hitting the hill presumably splits and streams round it and does not give a good up-current on the windward side. But as the gusts split on the windward side they must meet on the leeward side, and the resultant meeting seems to be what gives the upward kick. Probably Mr. Parker learned quite a lot about up-currents and gusts while flying the quaint machines of the deceased Lakes Flying Co. Ltd. round Windermere and that was how

he thought of doing just exactly what the average pilot would not have done, if the average pilot ever thinks at all, which one doubts.

It is a pity that the theories and experiences of men like Mr. Parker and the R.A.F. officer who thought of soaring up cliffs to help a bomb-raid cannot be got together and published for the education of all aviators. But if they were it is not certain that they would be read, for the average pilot is content to hang onto his engine and hope for the best. Still the people who did read them might impart much information in the form of yarns in R.A.F. messes and civilian aerodromes and other places where they argue.

Soaring in the R.A.F.

One has also been told, though not as by one having authority, that besides the idea of carrying out aerodynamic experiments those in High Places in the R.A.F. have a notion that gliders can be used to good purpose in the training of pilots. The scheme is apparently that after a pupil has done a certain amount of flying as a passenger and under instruction on a dual-control machine he shall be turned loose on a glider to learn what the wind can do with him and what he can do to conquer it.

There is much to be said for such a system. Gliders are cheap to build and easy to repair. Also, gliders being slow and light, there is but little chance of a pupil damaging himself badly so long as the gliding area is well chosen. And there is no danger of the machine catching fire in a crash. And there is no expensive engine to be wrecked.

It is quite likely that after a good course of gliding and soaring experiments under the eye of an experienced instructor who would explain in the vernacular just how and where and why certain silly mistakes had been made, a pupil would turn out to be a vastly better pilot than if he had never flown anything except power-driven machines. Such experience should certainly make for light hands and should improve judgment in landing.

If this scheme should be developed it follows that there will be quite big orders for gliders to be built by the Aircraft Industry, and so because of the reduction of overhead charges the price of gliders to the mere civilian customer should be considerably reduced. At present a glider has to be sold for something round about £120 to £150. If quantities were ordered by the R.A.F. it ought to be possible to sell gliders at a profit for anything between £50 and £75 or possibly less.

Which would again be all to the good as it would spread practical interest in flying a long way downwards in the scale of wealth.

The Other End of the Scale.

Already at the other extreme one hears of extraordinarily keen interest in gliding among the personnel of several aircraft factories in which as man-carrying gliders are for the moment rather beyond the means of the interested parties an immense amount of manual and mental labour is being put into the production of model gliders. Probably the most active manifestations of this species of gliding was given recently at the Avro factory at Hamble, where a regularly organised gliding competition took place on the morning of Sunday November 5th.

As it was the first event of its kind it is worthy of a somewhat full description. Numerous prizes were offered. Mr. Tinson put up a prize of £1 for the longest glide from the works' water-tower, which is 64 feet high; Mr. A. V. Roe put up 10s. and Mr. Blazdell put up 7s. 6d. and 2s. 6d. for the best constructed models; Mr. Calvert 5s. for the longest duration and Mr. Rogerson another 5s. for a second prize for distance. The £1 prize was won by Mr. F. Bastow, whose glider covered distances ranging between 450 and 500 feet. The first prize for construction was won by Mr. T. Wyatt, who also won the second distance prize with 360 feet. Mr. Cooper won the second construction prize and Mr. Rogerson the duration prize with a glide of 20.1-5 seconds.

One gathers that the proceedings were hilarious but to some extent pathetic. There were 35 entries all told, of which 20 machines were constructed by men in the workshops. Some of their products were excellent but other constructors evidently had very hazy ideas as to the positions of such things as centres of gravity and centres of pressure. Quite a number of machines went down in flat spins or did falling leaf stunts and some dived plumb into the ground where they dismembered themselves to the intense delight of everybody except their owners, each successive disaster provoking increased mirth.

Mr. A. V. Roe himself constructed a very interesting machine with wooden wings held in place with elastic which produced amazing results. The machine was very heavily loaded and as there was no wind it was impossible to launch it at flying speed. Consequently at every launch it dived almost into the ground before picking up flying speed and then zoomed in a way which bent the wooden planes till they almost imitated Mr. Herne's famous "Tishy" performance. But, like all Avro products, it held together and did its job in a most amazing fashion.

One of the successes of the meeting was an all-metal machine built of aluminium but covered with fabric which weighed about 3 lbs. to the square foot and hit the ground at the base of the tower with a thud which, as a spectator remarked, must have shaken Australia. Some machines did not even hit the ground but developed amphibious tendencies and dived into the water-tank on the roof of the works. Altogether the whole show was a great success and notwithstanding the bad luck which followed the products of many of the men one gathers that they are all as keen as possible to have another competition at an early date, prize or no prize.

A Works Competition.

It is to be hoped that the personnel of other aircraft works will develop similar enthusiasm, for this kind of thing is certainly one of the best possible ways of interesting aircraftsmen in their work. There is no reason why when a number of the men are so keenly interested as they evidently are at the Avro Works they should not combine with the assistance of the firm and make actual man-carrying gliders. The roof of the Hamble works would make an excellent launching platform against a West wind blowing across Southampton Water, as it generally does.

If only this paper had money to spare one would certainly put up a prize next year to be offered to the best performance on a glider turned out by the drawing office and workshop staff of an aircraft factory as a spare time product. Perhaps some well-to-do enthusiast will consider the suggestion.

(To be continued.)

R.A.F. INTELLIGENCE.

Appointments.

Air Ministry, Nov. 9th, 1922.

S/Ldrs. A. Gray, M.C., from R.A.F. Depot to C.F.S. (Supernumerary) 10/11; M. G. B. Copeman, from No. 2 Armoured Car Company (M.E.), to R.A.F. Depot (Supernumerary), 21/10; A. E. Panter, B.A., from Egyptian Group H.Q. to H.Q. Iraq Command (Supernumerary), 14/10; D. Power, M.C., Aircraft Depot (M.E.) to H.Q., Iraq Command (Supernumerary), 13/10; R. A. G. Elliott, M.B., B.A., from H.Q., R.A.F. (M.E.), to Egyptian Group H.Q., 6/10.

F/Lts. W. H. Riversdale-Elliot, from Palestine Wing H.Q. to No. 47 Squadron (Supernumerary), 25/9; C. K. Chandler, M.B.E., from School of Naval Co-operation and Aerial Navigation to No. 267 Squadron (Mediterranean), 30/10; F. H. Laurence, M.C., from Boys' Wing (Cranwell) to R.A.F. Depot (Supernumerary), 14/11; (Actg. S/Ldr.) W. B. Johnston, from Army (R.A.P.C.) to Central Accountant Office, Poona, for accountant duties, on secondment from the Army, 1/10; E. A. Lumley, M.C., M.B., from No. 47 Squadron to No. 4 F.T.S. (M.E.), 11/10; J. T. T. Forbes, from No. 4 F.T.S. to Aircraft Depot (M.E.), 12/10; G. H. H. Maxwell, M.B., from H.Q., R.A.F. (M.E.), to No. 47 Squadron (M.E.), 6/10.

Lieut. J. B. Glubb, M.C. (R.E.), to H.Q. Iraq Command, on appointment as G.S.O. 3 (Intell.), on attachment to R.A.F. for two years.

The Indian Air Command.

Reuter's correspondent telegraphing from Simla on November 9th says that as the result of Air Vice-Marshal Sir John Salmond's visit to India the Air Command in India has been raised to an air vice-marshal's command. Air Vice-Marshal P. W. Game has been appointed to the post, in the place of the present commanding officer, Air Commodore T. I. Webb-Bowen.

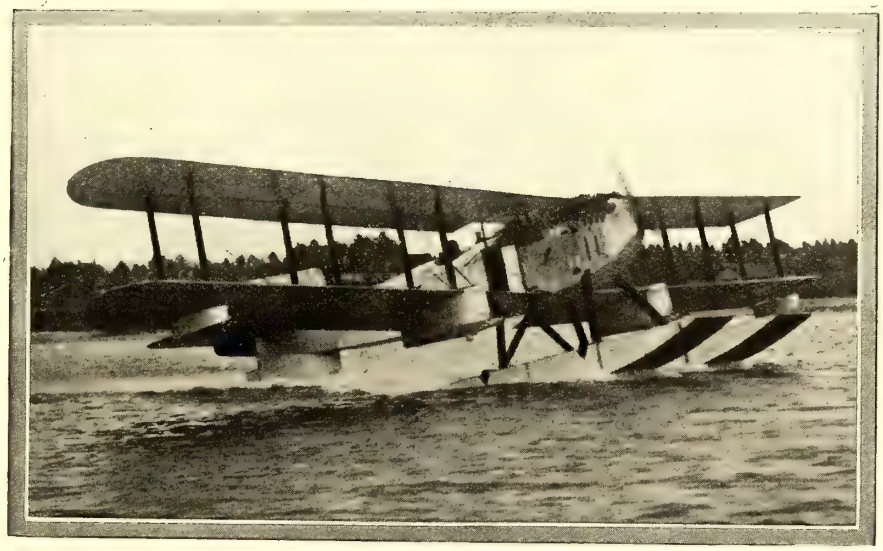
The headquarters of the Indian air establishment will be transferred from Ambala to Delhi and in the hot weather to Simla.

The appointment of Air Vice-Marshal Game is wholly to be commended from the point of view of the R.A.F. in India though his loss will be severely felt by the R.A.F. at home. He has a particularly brilliant record as a staff officer, and senior officers with first-class staff experience are by no means plentiful in the R.A.F., either at home or abroad.

Air Vice-Marshal Game came to the R.F.C. from G.H.Q., British Expeditionary Force in France at a time when General Trenchard was labouring to evolve order from chaos, and running a big fighting force at the same time. There is a story to the effect that he arrived with a chit from Sir Douglas Haig which said merely—"Herewith my best staff officer. Do what you like with him." Whether the story is true or not the work of Air Vice-Marshal Game ever since he joined the R.F.C. has justified the story.

There have been rumours from time to time that he has been about to leave the R.A.F. and either go back to the Army or retire to private life. Happily he has not done so, for he has now another chance of doing the work for which he seems so peculiarly suited, namely putting into operation an efficient system where inefficiency has hitherto prevailed. All who have had the privilege of serving under or with him will wish him every good fortune in his new command.

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Army Co-operation.

The following officers have been nominated for admission to the Staff College, Camberley :—W/Comdr. A. S Barrett, C.M.G., M.C., and S/Ldr. E. J. Hodsoll.

An Award.

S/Ldr. C. C. Darley, R.A.F., who was recently awarded the Albert Medal for his gallant attempt to save his brother from a burning aeroplane outside Rome last September, was presented on October 18th by the Society for the Protection of Life from Fire with their silver medal and ten guineas.

R.A.F. SPORTS AND PASTIMES.

No. 2, Squadron, Aldergrove.

The annual sports meeting was held at Aldergrove Aerodrome. Exceptionally fine weather favoured the fixture, with the result that a goodly assemblage was present, and thoroughly enjoyed a good day's sport.

The ground presented quite a gala effect, thanks to the efforts of the officer i/c ground, F/O. R. F. Casey, D.F.C. A feature of the day was a fine programme of music by the band of the 1st Battn. Seaforth Highlanders, who were present by kind permission of Lieut.-Col. H. F. Baillie, D.S.O., and officers of the regiment.

The programme was rather a long one, but, owing to the energetic endeavours of a capable committee, was got through in good time, and without a hitch.

The starting arrangements were in the capable hands of F/O. Stafford, and the prizes were presented by Mrs. L. F. Forbes, wife of the officer commanding.

The results were as follows :—

Long jump, Cpl. Moscrop; 880 yards, AC. Bradford; 100 yards, AC. Hall; 1 mile (open), Sjt. Tinkler (K.S.O.B.); 220 yards, Cpl. Moscrop; officers' race, F/O. James; 120 hurdles, F/O. James; 3 miles (open), Sjt. Tinkler (K.S.O.B.); high jump, AC. Roachford; obstacle race, L/AC. Edge; 440 yards, A.C. Bradford; tug-o'-war, "C." Flight; relay race, "B." Flight; band race, Bandsman Hope.

No. 3 Squadron.

No. 3 Sqdn.'s First XI still remains unbeaten in Ross-shire, whither the Sqdn. goes twice yearly for co-operation work with the Royal Navy. During the last exercises (June this year), only three matches were played, with the following results : No. 3 Sqdn. v. Invergordon. Result, draw, 2—2. No. 3 Sqdn. v. Allness. Result, win for R.A.F., 2—1. No. 3 Sqdn. v. Novar. Result, win for R.A.F., 4—1. All three matches were played away.

During the present exercises, only two matches have so far been played, the following being the results : No. 3 Sqdn. v. Allness, on No. 3 Sqdn.'s ground. Result, win for R.A.F., 5—1. No. 3 Sqdn. v. H.M.S. *Warspite*, on No. 3 Sqdn.'s ground. Result, win for R.A.F., 2—1.

Although the Sqdn. won against *Warspite*, the latter team played a very good sound game, and as they were runners-up for the King's Cup, we did very well to win.

The Second XI have only played two games this season, with the following results : No. 3 Sqdn. v. Novar. Result, win for Novar, 2—1. No. 3 Sqdn. v. Novar. Result, win for R.A.F., 4—1. Both home matches.

On September 9th, the Sqdn. played its first game of Rugby this season, against H.M.S. *Warspite*, resulting in a win for the R.A.F., by 5 points to 3. The game was very "scrappy" throughout, with nothing worthy of special note. The teams were mixed ones of officers and other ranks.

For Invergordon games on September 2nd, the Sqdn. entered three five-a-side "Soccer" teams, one officers and two other ranks. The officers' team was beaten by H.M.S. *Pandora*, by 2—0. The two men's teams were drawn to play against each other, but as it meant one match less, "B" team scratched, putting "A" into the second round. In this round they beat H.M. Submarine M3, 2—0. In the semi-final they beat Fearn Athletic by 1—0, but were beaten by a corner kick in the final by H.M.S. *Warspite*.

A tug-of-war team also was entered but beaten in the first round.

Henlow Notes.

Association Football.—This season our first team are playing in the Northants League, in which they will meet considerably higher class teams (mostly professional) than has been the case formerly. The opening match was against Irthlingborough, whom we defeated on their own ground by the easy margin of 7 goals to 1. On the 2nd inst. we drew with Biggleswade, 2 all; our opponents equalised in the last minute of the game. On the 4th we were beaten by Northampton Wanderers 1—2 and, as the match was "away" there were under a dozen Henlow spectators. The Wanderers' partisans showed themselves to be a most sporting crowd; they applauded the good work of our team freely and on all sides declared that we were unlucky not to draw. In this game our opponents again scored the odd goal in the last minute; indeed, both their goals were obtained when we had men off the ground hurt.

It will interest past followers of Henlow football to know that our team is the same as last year, with the exception of F/Sjt. Thompson, who, on expiration of Service, goes to Dundee Hibernians as a professional. "B" team are entered in the Bedford County and District League (which "A" team headed last season), and "C" are in the Bedford County and District League. Our other obligations include the F.A. Cup, Association Cup, Bedford Senior Cup (which we hold), and of course, the R.A.F. Cup, also held by Henlow.

On Sept. 9th we registered a win, 2—0, over Northampton Reserves and on the 14th all but got our revenge against the Northampton Wanderers. Our team was leading 3—0 when the match had to be abandoned owing to failing light. Our forwards played very well together in this game, despite the pouring rain. Sjt. Nicholls has taken AC. Vanner's place at outside right, as the latter is on the injured list. AC. Henderson is proving a useful substitute right back.

Rugby Football.—Practice for Rugby has begun, and the season will open with a match against our old and redoubtable opponents at Olney, on the 23rd instant.

Cricket.—The season was unsatisfactory. Our team won 5 and lost 7 matches; no less than 9 games were cancelled L/AC. Townsend played 8 innings and scored 102 runs; average 14. L/AC. Tomkins made 127 and averaged 10. AC. Walker was head of bowling, taking 23 wickets for 95 runs, average, 4; L/AC. Tomkins captured 24 wickets for 123 runs.

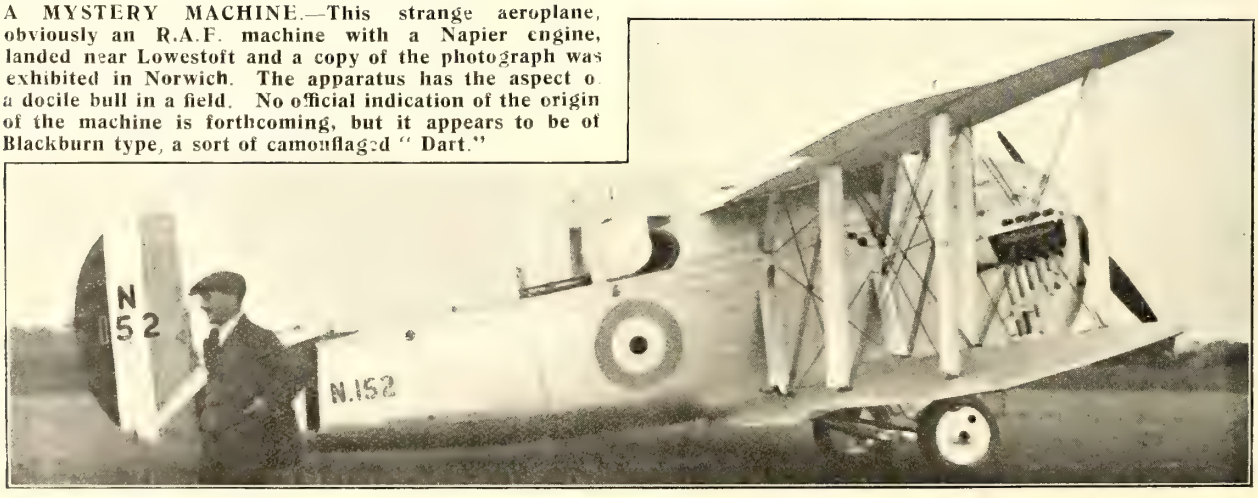
Tennis.—Tennis is dying hard; the Airmen at Henlow have now four grass courts which have played very well, considering that the turf was only laid this year. On the officers' hard courts a mixed tournament (doubles) on the American system is in progress of being fought out.

Shooting.—With the opening of the shooting season, insurance premiums on the lives of Herbert and Henrietta, the two hares who inhabit the ground have gone up. Herbert nearly lost his undercarriage in a collision with a prowling Avro last week and, in any case, we are expecting F/O. Pyer and his pack of beagles here at an early date.

Rifle Club.—The Officers' wives shooting championship was fired for on the 12th. There were 13 entrants and the leading scores were :—Mrs. Anne 139, Mrs. Cleasby 133, Mrs. Bourke 128, Mrs. Blackburn 128, Mrs. Hebden 118, Mrs. Newbury 108, Mrs. Chinery 102 and Mrs. Winfield Smith 93. Mrs.

(Continued on page 386.)

A MYSTERY MACHINE.—This strange aeroplane, obviously an R.A.F. machine with a Napier engine, landed near Lowestoft and a copy of the photograph was exhibited in Norwich. The apparatus has the aspect of a docile bull in a field. No official indication of the origin of the machine is forthcoming, but it appears to be of Blackburn type, a sort of camouflaged "Dart."



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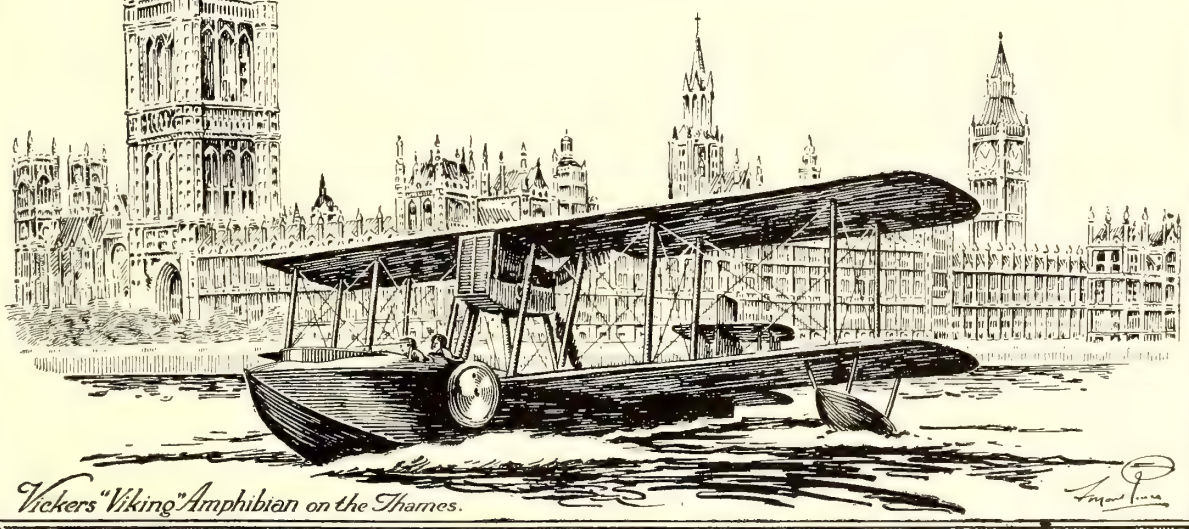
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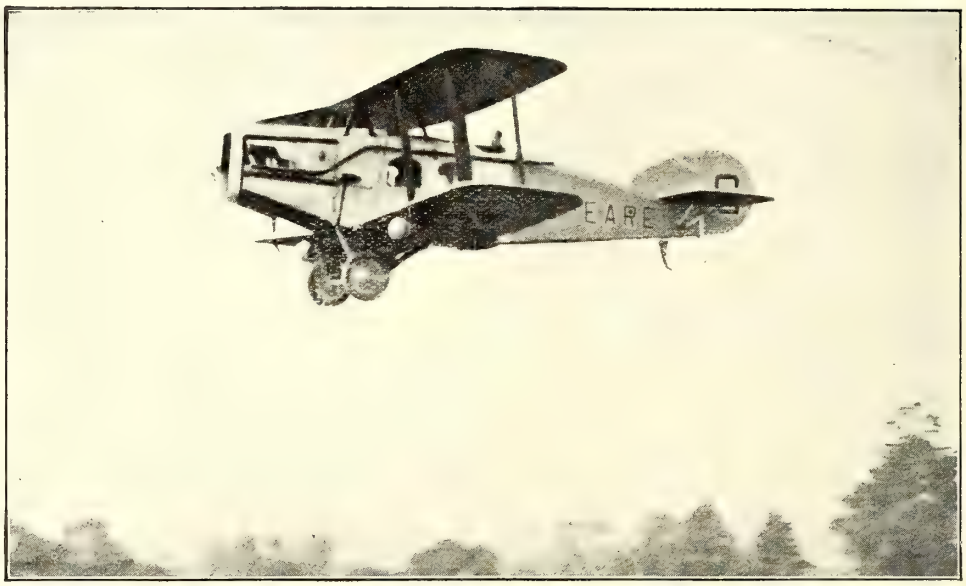


Vickers "Viking" Amphibian on the Thames.

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THE WEEKLY COMMENTARY.

Since the *Daily Mail* competition showed that soaring duration records can be regarded now as of little, if any, further value, it has been thought worth while to discuss the future development of soaring and gliding, both for sporting and for technical purposes.

A very interesting and distinctly novel design for a large flying boat is described in this issue. The machine has been built by a French firm of high repute and has given very promising results.

THE NEXT STEP.

The *Daily Mail* competition at Itford Hill has shown that contests for duration of gliding flight should now be regarded as things of the past. Undoubtedly efforts will be made still further to raise the record duration and undoubtedly some of these efforts will succeed. But no one can regard this particular type of record as of any great importance. Having found a spot favoured with an adequate up-current, one has but to sit over that spot long enough and provided the wind holds the thing is done. No extraordinary skill or experience is needed from the pilot—and only two qualities are required of the machine—controllability and a degree of aerodynamic efficiency inversely proportional to the strength of up-current available.

And the evidence of Itford seems fairly conclusive that no very high degree of aerodynamic efficiency is needed under really favourable wind and ground conditions.

From both the technical and the sporting point of view more than this is needed if gliding is to attain any permanent importance.

True Itford demonstrated the value of gliding as a method of revealing our ignorance on the subject of aircraft controls, but the problem having been set its solution can probably be worked out without again calling for anything in the way of soaring flight.

What is Now Needed.

What is now necessary is the evolution of a type of soaring and gliding contest which will call for skill and experience on the part of pilots, and for high efficiency on the part of the machines. And here Itford again can provide its lessons.

Everybody who watched Raynham's flight which started a few minutes after Maneyrol took the air on the last day of the meeting cannot have failed to notice that there was a very great difference between sitting on a localised up-draught—the way to put up duration records—and cruising—as Raynham cruised—over a reasonably long stretch of generally favourable country.

Raynham was obviously flying under constantly varying conditions. He was generally being blown upwards—he was obviously at times in a down draught and his flight was brought to an end because he finally got into a down draught of such strength that he was unable to cross it and regain an up-current before hitting the side of a spur.

Problems of Cross-country Work.

There can be no doubt that there is some definite physical connection between ground contours, wind direction and strength and the changes in the intensity of upward or downward wind components. It is even now possible to predict with fair safety, from inspection of a contour map and a knowledge of the wind direction, where one is likely to find the most favourable up-currents and the most marked down draughts along such a ridge as that used in the competition.

And very obviously experience will allow the pilot to predict—with some sort of certainty—where to look for good and how to avoid bad conditions for soaring.

Skill will obviously enter into the question also—for given the necessity of crossing a bad stretch of country the exact course followed in crossing must have a distinct bearing on the result. And the qualities of the machine will enter into the question. It will be of importance that the pilot should know his machine well—not merely as to the limits of the liberties he may take with it in regard to manœuvring in a restricted space—but also as to the effect on gliding angle and rate of loss of height of changes in his gliding speed. And obviously the efficiency of the machine will enter largely into the problem.

The Effect of Machine Characteristics.

For example one may have two machines, one with a gliding angle of 1 in 16 at a speed of 32 m.p.h. and the other with a gliding angle of 1 in 8 at 16 m.p.h. In still air both will fall at the rate of 2 m.p.h. and both should just soar in a wind with an upward component of 2 m.p.h. Either machine might set up a duration record under quite normal conditions.

But there could be no comparison between the two for cross-country work which involved the crossing of an appreciable stretch of air without an upward current in it.

For obviously the slower machine takes twice as long to cover an equal distance across the gap between up-currents—and would therefore lose twice as much height. Also, owing to the longer time taken the leeway made would be twice as great—which could never be an advantage.

On the other hand the low speed machine with a low rate of descent would have advantages under certain circumstances. Given an up-current just greater than 2 m.p.h. both machines could gain height at an equal rate.

If the horizontal wind velocity was just 16 m.p.h. the slow machine could just sit nose to wind and climb. The faster one would have to turn continually to keep inside the favourable area, and every turn would reduce to some extent the height gained.

Obviously therefore the best machine for such work will be the one possessing the least possible range of descent over the greatest possible speed range, and the pilot who will succeed best will be the one who uses this characteristic of his machine to the best advantage.

A Comparison with Yachting.

The problems of this type of soaring flight bear a very great resemblance to those involved in yacht racing—which should suffice to indicate the potential sporting possibilities of cross-country gliding.

And the call on the skill of the glider designer will be just as great is the call on the skill of the yacht designer. The design of gliders may develop into a specialised art—just as has the art of racing yacht design—but it will necessarily preserve a fairly close relation to other branches of applied aerodynamics, and will serve to accelerate progress in our knowledge of aeronautics generally.

Mynheer Fokker has already offered a prize of 200 gulden for the first cross-country flight of over 25 k.m. made in Germany, and it has now been announced that Mr. Gordon Selfridge has undertaken to present a prize of 1,000 guineas for the first flight of over 50 miles measured in a straight line made in Britain by a British pilot in a British machine.

The contest is to be open for one year from January 1st next, and if the 50 miles is not accomplished in that period a prize of the amount may be awarded for the best flight of over 25 miles.

One can therefore feel certain that every effort will be made to develop the new sport along the lines which promise most from both the sporting and the technical points of view. The Selfridge prize is not likely to be won so easily as was the *Daily Mail* Prize—but it is pretty certain that it will be won—and in the process of winning it there is not very much doubt that Britain will acquire a leading position in the gliding world.—W. H. S.

THE MARCEL BESSON QUADRUPLANE.

On the Marcel Besson stand at the Grand Palais last year there was shown a scale model of a large quadruplane flying-boat that was being built at the works of the Société des Constructions Aéronautiques et Navales Marcel Besson at Boulogne-sur-Seine. This machine has now been completed and delivered to the seaplane experimental station at St. Raphael for test.

In general arrangement the machine is a flying-boat, the hull being constructed in two portions, the fuselage proper being attached to the boat portion in a manner similar to that found on the Saunders "Kittiwake" constructed for the Air Ministry Amphibian Competition of 1920. The wings, although of quadruplane arrangement, are more easily described as being of double biplane form, and consist of four planes of equal span, the top and one from the bottom and the one from the top and the bottom planes forming two unstaggered biplane cellules, these two cellules being set at a heavy stagger to each other. Each cellule has interplane struts of "X" form with short interconnecting struts between the rear top spar and the front spar of the second plane, the front spar of the second plane and the rear spar of the third plane, and the rear spar of the third plane and the front spar of the bottom plane. This arrangement can be seen clearly on the side view on the attached general arrangement drawings. The wings are of normal construction and call for no special comment. The second and bottom wings only have ailerons of small chord and big span which are operated by push and pull rods, all pulleys having been eliminated throughout the control system.

The fuselage portion of the body is entirely separate from the boat, and contains the passenger cabin, pilot's cockpit, and wireless operator's compartment. The fuselage, which is of ordinary construction and fabric-covered, is bolted to the boat portion at ten points of attachment. The boat is built up of three skins of mahogany, riveted and fabric covered, and is divided into 24 watertight compartments. Two small wing-tip floats are mounted under the extremities of the bottom planes.

The engines—four 250 h.p. Salmsons—are mounted on two power eggs, each egg containing two engines driving one tractor and one pusher airscrew. The engines are cooled by four Lamblin radiators, one for each engine, carried underneath the third plane.

The tail unit consists of three vertical and two horizontal surfaces. The centre vertical surface is the rudder, the two smaller surfaces being used to offset the action of one or more of the engines cutting out. Each vertical surface is attached to a fixed fin. The elevator and tail plane are the lower of the horizontal surfaces, the upper surface being used as a trimming plane.

The cabin is of considerable size and has accommodation for 20 seats. Behind the cabin is the wireless operator's cabin. The pilot's cockpit is in front and above the cabin and is fitted with dual control.

The machine has been undergoing test at St. Raphael and has been giving promising results. With full load she has got off the water in 500 metres run and shown a speed of 130 km.p.h.

After full tests with this machine, it is proposed to substitute for the present engines the newer 300 h.p. Salmson type, and the increase in power together with such modifications as may be suggested in the present tests should make for an improvement in performance in the first real specimen of large French flying-boat design.

Having seen previous types of Besson flying-boats, one can assume that, constructionally, the H.5 is up to British flying-boat standards.

THE BILLE VARIABLE SURFACE AEROPLANE.

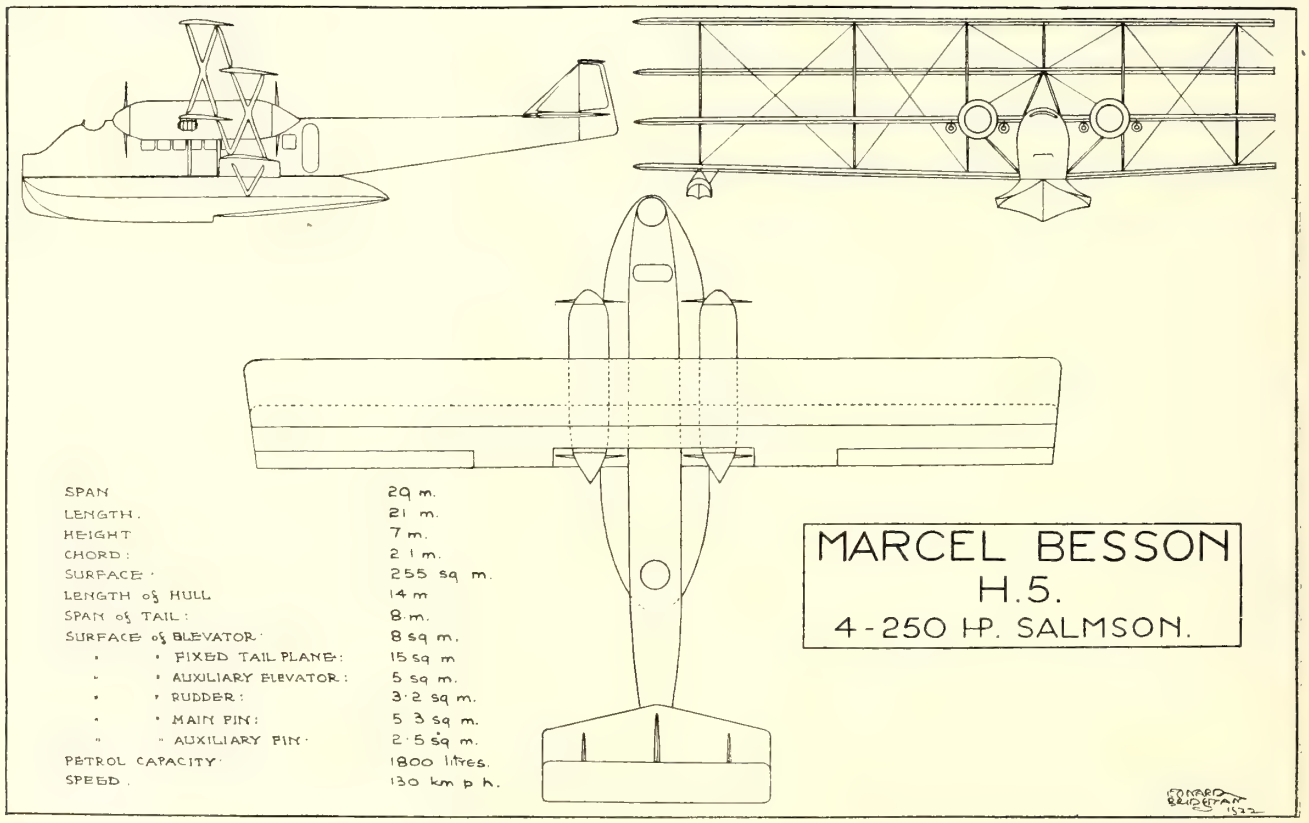
Speed range and the problem of low-landing speeds, although of considerable importance, have not shown much progress in recent years. The Fairey variable wing flaps produced during the War, and introduced on the Hamble "Baby" seaplane and on all Fairey seaplanes, together with the more recent experiments with the Handley-Page slotted wing, represent the sole attempts to improve speed range in this country, and neither of these attain their results by the augmentation of wing surface.

In France the most notable attempt of recent years to produce an aeroplane of variable surface was shown in the Gastambide-Levavasseur biplane, which in a series of protracted tests showed considerable promise.

M. Bille, chief engineer of the firm of Bellanger Frères, Route de la Revolte, Neuilly-sur-Seine who have recently opened an aviation department, has designed a variable-surface aeroplane, which is unlike the Gastambide Levavasseur in that the wing section is preserved throughout all positions of the extension.

The wing is of all-metal construction, and consists of two portions, the forward fixed section, and a movable rear section, which telescopes into the rear half of the front portion.

The front portion is built up of one rectangular duralumin spar, and a steel tube carrying a series of steel ribs. The tube constitutes the leading edge, and the spar is situated half-way along the ribs, leaving the rear half of the ribs free to allow the telescopic portion to slide therein. The rear portion is built up on two steel tubes with steel ribs in a similar

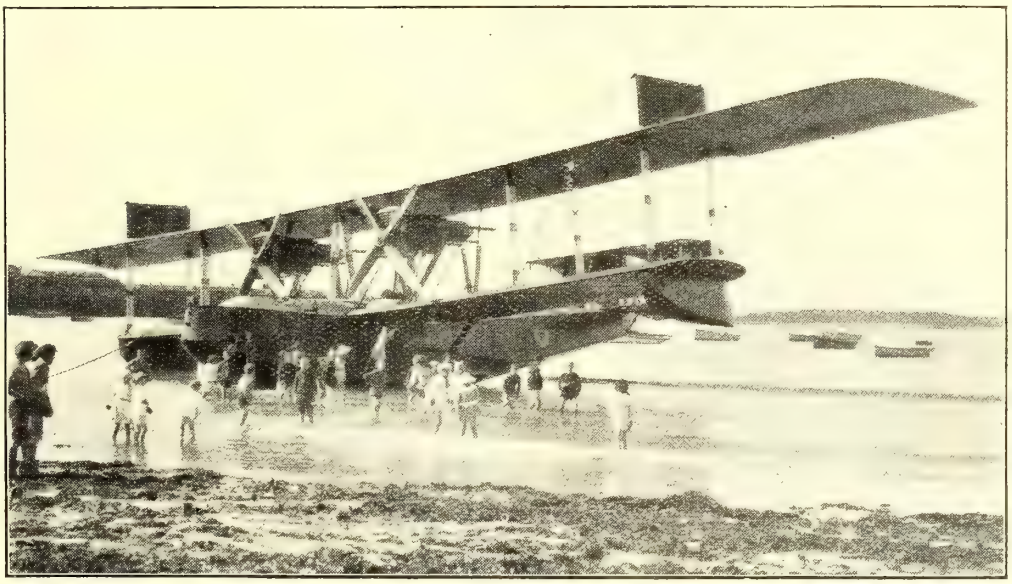


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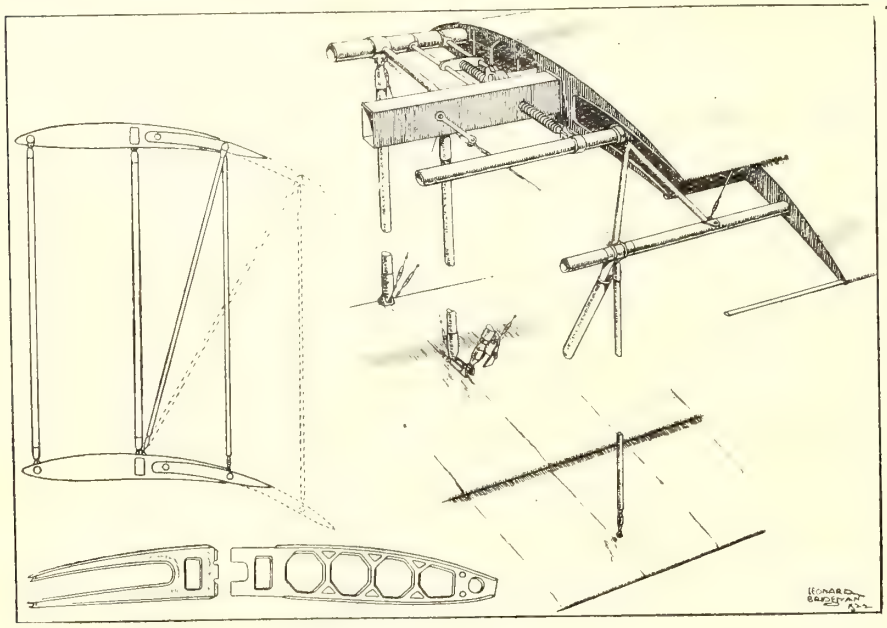
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SOME DETAILS OF THE BILLE VARIABLE WING.—The end elevation on the left shows diagramatically the arrangement of the sliding trailing edge working in a slot in the forward part of the wings, and the inclined strut, which serves as a radius rod.

Below this is seen the two components of one of the steel rigs, showing the slot at the rear.

On the right is a perspective view showing the general ensemble of the mechanism, with the right- and left-hand screw gear for operating the sliding portion of the wing.

manner, except that the trailing edge is finished off with a metal strip. The interplane struts are of steel tube, and are four in number on either side.

Two inter-connect the two spars of the forward fixed portion of the wings, one the rear tubes of the movable portion of the planes, and the fourth is pivoted to the base of the rear strut on the fixed wing, and the top end of the strut on the movable wing portion. In side view the struts resemble the word *in* with the N reversed.

The operation of opening the wing is performed either by hand or by the engine, and requires very little effort. A tube running inside the fixed plane has at one end a bevel gear connecting to a vertical tube in the cockpit, and at the opposite end operates by means of a helical gear, a rod attached to the movable section. The ailerons are fitted to the movable portion of the plane, and are operated by a cable passing inside the hinged strut. This strut, it will be seen, act as a radius rod, and thereby increases the camber of the planes when the wing is fully extended.

The wing surface closed is 21.1 square metres, and this increases to 26.8 square metres when fully open.

A small biplane fitted with these wings has been built, and is awaiting test. It is fitted with a 130 h.p. Clerget engine, and is of 9-metre span, both wings being equal, with a gap of 1.52 metres. The total weight is 928 kilogs, useful load 160 kilogs, and carries 155 kilogs of petrol and oil.

This particular contrivance is distinctly ingenious, but it is difficult to understand how any value can be claimed for it. The wing will very obviously be considerably heavier than a fixed wing of the extended area. With a necessarily increased total weight per h.p. it is doubtful if the top speed with wings closed will be better than could be obtained on a fixed wing machine designed for equal landing speed; and one can only suspect that it is one more way of getting nothing for something.

However, according to reports from France, tests recently made on the machine by Maneyrol, who, after spending years in useful test and experimental flying on power machines, and having made one long soaring flight, is naturally described as "the famous sail-plane pilot," are regarded as being satisfactory. It is stated that the high speed of the machine is 170 km.h. (106 m.p.h.), that this speed could be reduced to 60 km.h. (37 m.p.h.), and that landings were made at 20 km.h. (12 m.p.h.). Assuming that the landing speed is a ground speed, and that 60 km.h. is the approximate stalling speed, one can find no reason to modify the opinions expressed above.

THE HEAT TREATMENT OF STEELS.

("Steel Thermal Treatment." By John W. Urquhart. London: Crosby, Lockwood, and Son. Price, 35s. net.)

The heat treatment of steel is one of the oldest of the metallurgical arts. But for centuries its application was limited almost entirely to the hardening and tempering of a nearly uniform class of steel for use in the form of tools or springs.

For this limited purpose the practical knowledge and personal skill acquired by, and transmitted through, long generations of trained workers was sufficient to secure the desired results.

Of recent years the art of making and of using steel has undergone an immense change. "Steel" is no longer a term which sufficiently defines a particular material—it now embraces a series of materials of widely differing qualities and uses. And "heat treatment" as applied to this extended range of steels is directed to purposes other than that of producing the qualities needed for cutting tools and similar purposes.

It has therefore become quite impossible for any one craftsman to acquire the personal experience which would enable him to deal with any or all the steels which may be used in a given workshop in such a manner as to develop from each the varying physical qualities which may be desired for varying uses.

The heat treatment of steel has therefore become less of an art and distinctly more of a science in recent years. At the same time, the possession of a sound knowledge of the principles and practice of heat treatment has become necessary in almost every branch of engineering work, very specially in aeronautical design and construction.

In the work under review the author, who has very obviously a fairly wide practical experience of workshop practice in this matter, has made a strenuous effort to put his knowledge of the subject at the disposal of others. The book contains much information, and offers many practical hints, which are doubtless of the very greatest value.

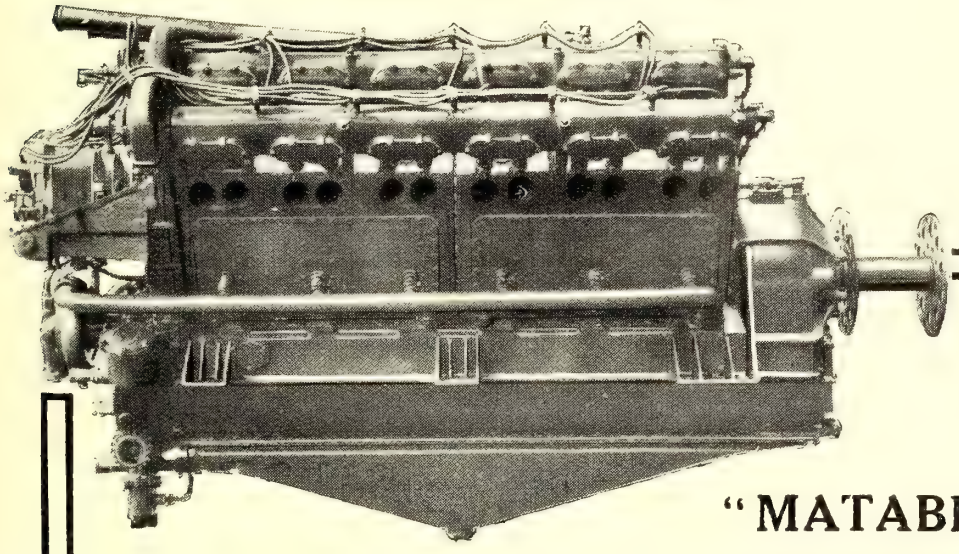
Unfortunately the book is extremely difficult to read and to understand. There are many sentences and clauses to

A SOARING FLYING-BOAT.—The machine here shown is an engineless flying-boat, built by the L.F.G. Works at Stralsund to the designs of Herr G. Baatz.

The machine is a cantilever monoplane of 16 metres (52 ft. 6 in.) span and 7 metres (23 ft.) long.

On test the machine got off the sea in a 12-14 metre per sec. (28-30 m.p.h.) wind without assistance from any motor-boat—it was simply anchored by a cable to a moored boat and pulled off the water by virtue of the wind speed.





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which it is impossible to attach any definite meaning whatever; there are many more wherein it is possible—with some knowledge of the subject—to discover the intended meaning, but which are certainly likely to confuse those who are seeking for knowledge.

There is an entire lack of order and continuity displayed throughout the work which renders it extremely difficult to obtain from it any general idea of the subject as a whole, and which suggests that it is very largely an insufficiently edited collection of odd notes made from time to time. This is extremely unfortunate, for, in fact, the work contains, as has already been said, much valuable information.

A CORRECTION.

The following letter has been received from Captain the Master of Sempill :—

Kasumigaura, October 1st, 1922.

Sir,—In your issue of August 23rd, page 144, under the heading, "Movements in Japan," a reference is made to Lt.-Col. (Major) Orde Lees (R.M.L.I. retired), which is somewhat misleading.

Lt.-Col. Orde Lees joined the British Aviation Mission as Lt.-Commander I.J.N. (attd.), and amongst other duties was responsible for work in connection with parachutes. Several types of parachutes have been in use, including it is true the "Guardian Angel," but it is incorrect to say that he came here to demonstrate the latter or any other parachute in particular.

As you must well know, the British Aviation Mission operates as a Service Unit.

(Signed) H. Sempill,
Capt. I.J.N. (Attd.), Commanding Officer British Aviation Mission.

CREDIT WHERE CREDIT IS DUE.

As is fairly well known, the C.W.S. glider, entered for the *Daily Mail* competition, was built by the Central Aircraft Company, of 179, Kilburn High Road, N.W., and, as the person responsible for the design of that machine, one feels it a duty to give to them due credit for the very sporting attitude which they have taken over that machine and to the very excellent work which they put into it.

This particular machine was in many respects rather an ambitious attempt to produce a really efficient glider, and, although considerations of ease of manufacture were taken into account in the design, they necessarily gave way—in many instances—to other considerations, and the construction of the machine in the very limited time available was considered by many competent judges to be impossible, particularly as work had in any case to be started without complete drawings.

The Central Aircraft Company undertook to build the machine in time for the competition at an extremely low price, and they kept their promise.

Naturally on an entirely new design, carried out under severe pressure of time, unforeseen difficulties of one kind and another arose; but, thanks to the energy and interest of the firm, all were successfully overcome. There is no sign of rushed work to be discovered about the machine—materials, workmanship, and finish were maintained throughout at an extraordinarily high standard—quite considerably higher than that achieved in many power aircraft built under A.I.D. inspection—and one has to express one's very sincere appreciation of the way in which all concerned used every effort to ensure the success of the machine.

It requires also to be made clear that the failure of the machine to put up any kind of a show during the competition was due entirely to causes outside the control of the builders. The machine never made more than short test glides, because these tests showed that lateral and directional control was non-existent. The cause of this defect lies certainly in the design—both aerodynamical and mechanical—of the control arrangements themselves, for which the present writer is entirely responsible.

Steps are being taken—with the co-operation of the Central Aircraft Company—to remedy these deficiencies, and one has every hope that within a few days the machine will be ready to do credit to the Central Aircraft Company's excellent workmanship.

In any case, from personal experience one can safely recommend anyone who wishes to have a glider or other aircraft built of really good materials, and of sound workmanship, at a reasonable price, to try and persuade the Central Aircraft Company to undertake the work for them.—W. H. S.

A GOOD CHOICE.

Mr. H. Spencer Naylor, managing director of Naylor Brothers (London), Ltd., varnish and paint manufacturers, of Slough, Bucks, has been elected chairman of the London Association of the National Federation of Associated Paint, Colour, and Varnish Manufacturers of the United Kingdom.

THE NEW WORLD'S SPEED RECORD.

On October 18th Brigadier-General W. Mitchell, C.M.G., Assistant Chief of U.S. Air Service, established a new world's record by covering the kilometre course at Selfridge Field, Mount Clemens, Mich., four times at an average speed of 224.05 m.p.h. He was flying the Curtiss Army Racer (375 h.p. Curtiss D12) which Lieut. Maitland flew in the Pulitzer Trophy Race.

On the previous day, and over the same kilometre course, which has recently been installed at Selfridge Field, Lieuts. Barksdale and Whitehead, both piloting Leoning racers (600 h.p. Packard engines) made an average of 191 m.p.h., Capt. Hunter, on a Thomas Morse 22 (600 h.p. Packard) 179 m.p.h., and Lieut. Calloway, U.S.N., on the Bee Line racer (400 h.p. Wright) made an average of 177 m.p.h.

All these tests were electrically timed by the American representatives of the F.A.I., and if General Mitchell's speed is homologated by the Contest Committee of the Aero Club of America it will become the new world's speed record.

AN AUSTRALIAN CONTEMPORARY.

All those who are interested in Australia should make a particular note of the fact that Mr. Edward J. Hart has now been able to revive that excellent paper *Aircraft*, which suffered from temporary paralysis early this year. No. 4 of Volume 1 of the new series is dated July 31st, the same issue being No. 10, Volume 3, when the old original Australian *Aircraft* is counted in. Mr. Hart himself is one of the pioneers of aviation in Australia; in fact one is rather under the impression that he was the first person who ever flew in Australia. At any rate, he was one of the first half-dozen, and one seems to recollect that he was the first Australian ever to be seriously injured in an aeroplane accident, the said accident laying him out for some months.

One does not know whether his physique has been permanently affected by that crash, but whatever it has done it has certainly not affected his brain, for *Aircraft* is undoubtedly the brightest and best aeronautical paper published in the English language barring one whose title would be mentioned but for the inherent modesty of this paper. Not only is Mr. Hart's *Aircraft* well informed, but it is thoroughly well written in that style which can only be acquired by one who has been through the mill in his early days, and has lived and had his being among practical aviators.

Everybody in this country who is interested in the development of aviation in Australia should certainly subscribe to *Aircraft*. British subscriptions should be sent to the London correspondent of *Aircraft*, Major F. A. de V. Robertson, 12, Christchurch Road, Hampstead, N.W.3.

THE FIRST AUSTRALIAN-BUILT AEROPLANE.

On June 16th, 1922, the Australian Commonwealth Government took delivery of the first of a batch of six Avro 504k biplanes (130 h.p. Clerget) built to their order by the Australian Aircraft and Engineering Co., Ltd. The ceremony took place at Mascot, N.S.W., and the christening was performed by Dame Mary Hughes, G.B.E., wife of the Prime Minister, in the presence of a representative gathering of notabilities. The firm's managing director, Mr. Nigel Love, carried out the first flight, and S/Ldr. Frank Barnwell, R.A.A.F., tested and accepted the machine on behalf of the Australian Air Board.

The joint ceremony of christening and launching, performed by Dame Mary Hughes, consisted in snipping with souvenir scissors a handful of silken streamers which connected the rudder with a steel peg in the ground, and breaking a bottle of Australian champagne on the fin with the words "I name this first Australian-built aeroplane 'Mary' —may God bless her pilot and all who fly in her."—the same words with which she launched the first seaplane for the Australian Air Force at the Fairey works last year.

MR. ENGLAND'S PROGRESS.

The many friends and admirers of Mr. Gordon England will be glad to hear that he is making excellent progress in the Princess Alice Hospital at Eastbourne. The doctors have distinct hopes that when he has quite recovered he will have a useful ankle, though the injured leg will probably be an inch shorter than the other. At present Mr. England's great ambition is to rebuild his damaged glider and have it again tested to prove definitely that the accident was not caused through any defect in the controls.

One believes that on this point he may rest entirely tranquil as the machine obviously controlled very well indeed, though possibly like practically every other glider at the meeting the controls stalled and became inoperative at low speeds when the wings themselves were still lifting. Everybody wishes Mr. England a quick and complete recovery.—C. G. G.

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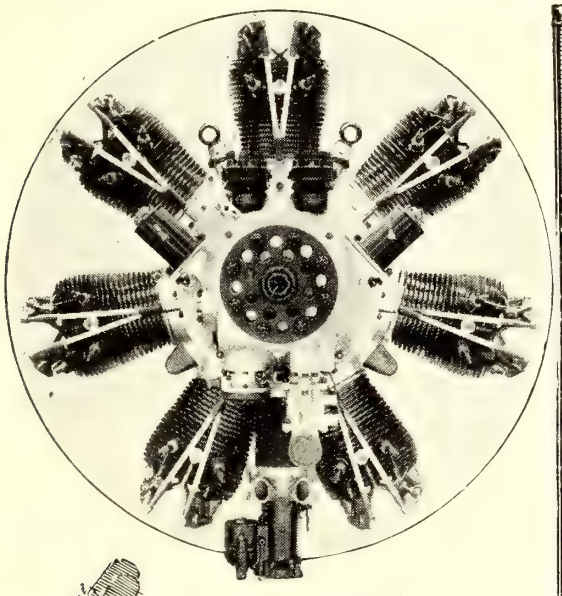
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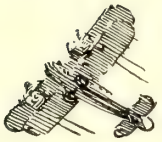
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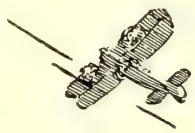
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(Continued from page 376.)

Anne won the C.O.'s challenge cup; Mrs. Bourke beat Mrs. Blackburn in the shoot-off for 3rd place—the C.O.'s wife is particularly deadly on plates and scored a possible each time. Mrs. Cleasby proved the winner of the sealed handicap competition.

Gosport.

RUGBY FOOTBALL.—At Gosport on September 13th the season opened against our old rivals, Calshot. The game was keenly contested, but was more prominent for its strenuousness than skilful tactics. The game ended in a win for Gosport by 3 points to nil. The only try was scored by F/O. Bryant after a good bout of passing early in the first half. AC.s Berry and Donovan very nearly scored for Calshot, and would have inevitably have done so had they passed out.

On September 20th Gosport played H.M.S. *Vernon*. The Vernon were undoubtedly the better team, their forward and backs having more cohesion than our team. They were composed almost entirely of last year's Greenwich College undefeated "A" team. H.M.S. *Vernon* scored 3 tries in the first half, and AC. Baker scored for the home team. In the second half AC. Green scored after a very fine individual effort, the Vernon again scoring twice.

Freemasonry.

Ad Astra Chapter, No. 3,808, held its annual meeting at the Café Royal early in November. Mr. H. W. S. Outram was installed as First Principal, Mr. J. Lawrence as Second, and Mr. G. P. Bulman as Third. The other officers invested were :—

Messrs. G. H. Dyball, I.P.Z.; H. J. Bush, Scribe E.; J. M. Waite, Scribe N.; A. Ashton (P.G. Reg., Essex), Treasurer; L. Warner, P.S.; E. W. Short, 1st Asst. S.; W. P. Savage, 2nd Asst. S.; R. Bagnall-Wild, P.Z., D.C.; J. Batten, Organist; C. Newbald, Steward.

Yarmouth Air Station Re-union.

The third reunion dinner for the officers and ex-officers of Yarmouth Air Station was held at Oddenino's on October 28th. Wing/Cmdr. D. A. Oliver, D.S.O., was in the chair, and was supported by Lt.-Col. Vincent Nicholl, S.Lds. A. B. Gaskell and Robert Leckie and many others. A very cheerful evening was spent.

The secretary, G. F. H. Bloom, states that the next reunion will be held on the last Saturday in October, 1923, and that the names and addresses should be sent to him at 17, Welbeck Street, Cavendish Square, W.1.

The Amphibian.

A new series of articles called "Squadrons of the Great War" starts in the September number of the *Gosport Magazine*. 60 Squadron, which was formed from No. 1 R.A.S. at Gosport in early 1916, is the first unit dealt with. The author, who obviously belonged to the Squadron, tells its story in just the way one would like to read all Squadron histories and though his spelling is distinctly shaky, his facts are sound.

Gosport have done very well in the various athletic meetings in which they have taken part during the summer and a long list of "Rugger" fixtures looks well for the coming season.

Particularly entertaining is a yarn called "Camouflage" which one recommends to editors of the daily press as inspiration for another "R.A.F. scandal" article.—C. M. MCA.

The Airman.

The September number of *The Airman* is an exceptionally good one. The sports section gives good accounts with photographs of the R.A.F. Championships at Henlow, No. 1 Group Sports at Kenley and the Army and R.A.F. Sports at Aldershot. Wing/Cmdr. Primrose's story of his "Hustle through the Middle East," is concluded in this number, and F/Lt. Henderson has started a very interesting article on "The Aeroplane and Map Making." This will be continued in subsequent numbers.

The "Fighting Airman" series this number deals with the career of S/Ldr. W. A. McClaughry, D.S.O., M.C., D.F.C., and there is a very clever sketch by AC. Simpson. The Editor, who is to be congratulated on this number, apologises for the fact that no August number was published owing to the general summer leave, justifiably pats himself on the back, and finally takes leave of the Armoured Car Details who are departing for Iraq this month.—C. M. MCA.

A PROMOTION.

According to a paragraph in a French paper, Lieut. Aviator Willy Coppens, D.S.O., M.C., Air Attaché at the Belgian Embassy, London, has been promoted from Chevalier to Officier in the Legion d'Honneur, by the French Government.

This promotion constitutes a tribute to a very gallant Belgian officer who, having served brilliantly during the war, has, since the Armistice, devoted himself to the cause of international aviation.

THE GUILDHALL BANQUET.

Lieut.-Col. the Rt. Hon. Sir Samuel Hoare, Secretary of State for Air, replied for the R.A.F. to the toast of "The Imperial Forces of the Crown" at the Guildhall Banquet on November 9th.

According to the *Daily Telegraph* he said that he only entered the Air Ministry a week ago, and it was quite possible in the vicissitudes of politics that he might leave it a week hence. In those circumstances, he did not expect that they would desire him to expatiate either upon Air policy or upon Air programmes. He was there simply and only as the channel through which certain information about the Air Force could be transmitted to the citizens of London.

The Air Force was month by month establishing its position, and month by month proving its usefulness. (Cheers.) Let him give two examples of what had been happening in the last few months in the Dardanelles and in Iraq to illustrate the efficiency of the Force. General Harington was so much impressed by the moral of the men and the efficiency of the Force that he wrote as follows to Sir Hugh Trenchard, the Chief of the Air Staff: "I inspected the Air Force to-day, and I can only say you can rightly be proud of it. I realise you sent me of your very best, and I am grateful. The tone, keenness, organisation, and efficiency is delightful to see, and I am proud to have them under my command, and I have just sent them a memorandum to tell them so." That was praise, not from a member of the Air Force, but from one of the most distinguished generals in the British Army.

The second example illustrated not only the achievements but the future potentialities of the Air Force. In Iraq it was recently decided for political reasons to evacuate a certain place. In the face of a gale of forty miles per hour and a terrific sand storm, sixty-five men, women, and children, with all their stores and equipment, civil and military, were evacuated by air to a point 100 miles distant between dawn and noon on the same day.

The force was, first of all, a defence force, but its potentialities they were now beginning to realise. It was also a force for peace. More and more would civil aviation establish itself as one of the factors in trade and travel, and our intercourse with the world at large. He asked the citizens of London to look with special interest and sympathy upon the development of a service that might be as invaluable to the peaceful avocations of British citizens as it was to home and Imperial defence.

THE BRITISH MISSION.

Captain the Master of Sempill who has been in Japan with the British Aviation Mission will be arriving in England at the end of December when his address will be 12, Gardnor Mansions, Church Row, Hampstead, N.W.3, and the Junior United Service Club, Charles Street, St. James, S.W.1.

PERSONAL NOTICES.

ENGAGEMENTS.

JONES—STOVELD.—A marriage has been arranged between Yolande Doreen Clifford Stoveld, younger daughter of William Clifford Townshend Stoveld, The Old House, Debenham, Suffolk, late of Starston, Norfolk, and Arthur F. Jones, R.A.F., Ambala, India.

WAISTELL—CHRISTIAN.—An engagement is announced between Captain A. M. Waistell, D.S.C. (R.A.F., retired), youngest son of the late Mr. Charles Waistell, Northallerton, Yorkshire, and Mrs. Waistell, Totland Bay, I.W., and Honora Mary, elder daughter of Mr. and Mrs F. H. Christian, Midlington, Droxford, Hants. The marriage will take place in India early in March.

WOODS-PRITCHARD.—The engagement is announced between Sydney Frank Woods, late R.A.F., and now of the Berkshire Aviation Co., Ltd., third son of E. J. Woods, of Lilleshall, Shropshire, and Dorothy, youngest daughter of the late A. Pritchard, Leatherhead, Surrey.

MARRIAGES

BLOFELD—FIRMIN.—On November 1st, at Richmond, Surrey, F/O. Bernard Leslie Blofeld, R.A.F., third surviving son of Mr. and Mrs. H. Blofeld, of The Woodlands, Sydenham Hill, to Dorothy Evelyn Firmin, widow of J. E. R. Firmin, Second/Lieut., 5th Batt. Wiltshire Regt.

DRUMMOND—TAYLOR.—The marriage of Mr. Edward Morton Drummond, Black Watch, attached R.A.F., eldest son of Mr. and Mrs. Gerald Drummond, of Dayleside, Woodford, Essex, and Daphne, daughter of Mr. and Mrs Wilfrid Taylor, of Mitre Court Chambers, Temple, took place on Nov. 9th at the Chapel Royal, Savoy.

HENDERSON—DEUCHAR.—The marriage took place on Nov. 10th, at the Chapel Royal, Savoy, of F/Lt. Thomas Henderson, M.C., son of the late Mr. Thomas Henderson and of Mrs. Henderson, of Tynemouth, with Edith Sylvia, daughter of the late Mr. Alexander Deuchar and of Mrs. Deuchar, of Rodney Court, W.9. S/Ldr. A. S Morris was best man.

MATHESON—GAMBLE.—On October 31st, at Eastchurch, Kent, F/Lt. Ian M. Matheson, R.A.F., of Pollo, Ross-shire, to Eileen May, only daughter of the late George Gamble, of Winchester.

BIRTHS.

MEDHURST.—On the 10th Nov., at Fulford Vicarage, York, the wife of F/Lt. C. E. H. Medhurst, O.B.E., M.C., R.A.F., a daughter.

TAIT.—On August 4th, at South Coast Junction, Natal, to Sybil, the wife of William Monsell Tait, late Capt., R.A.F.—a daughter.

F-ADAY F-A
F-ADC^
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F-FA
F-FHI
F-UHM
F-YHM
F-ADAI
F-ADAU
F-ADBM
F-ADBP

C.M.A. Air Lines is the British title of the Compagnie des Messageries Aériennes, whose head office is at 2, Rue Galilee, Paris. The Company was originally founded early in 1919, by M. Louis Breguet, for the transport of goods from Paris to Lille, the ground communications having been so much disturbed by the European War. This line, which was the first commercial aviation service in the world, was soon extended to Brussels and the line from Paris to Brussels has been maintained by the Company ever since.

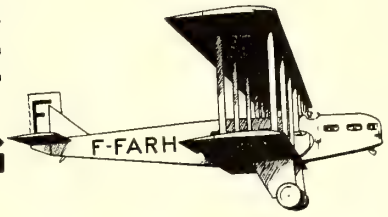
In September, 1919, a service between London and Paris was inaugurated in conjunction with Handley Page Transport, Ltd. This was originally operated three times a week each way, but later, when the two Companies separated, a daily service was commenced, which has now been extended to a thrice daily service. Compagnie Générale By an arrangement with the Compagnie Générale Transatlantique a service is run to connect with the arrival and departure of this Company's sailings between Le Havre and New York. This is the first occasion on which a large shipping company has recognised the necessity of using commercial aviation in its transport policy.

The Company's service has now reduced the time of transit between London and Paris to two and a-half hours; between London and Le Touquet to one and a-quarter hours; between Paris and Le Touquet to one and a-quarter hours; between Paris and Brussels to two and between Brussels and Amsterdam to two hours. A line has been inaugurated to run direct from London to Marseilles, calling at Paris and Lyons and connecting with the Steamship Lines to India and the East. This brings Marseilles within eight hours' reach of London and Lyons within six and a-half hours. This

The C.M.A. Passenger Service is maintained by twin tractor Farman Goliath Biplanes, fitted with two 300-h.p. Renault Engines and with a seating capacity for 12 passengers, pilot and mechanic. This machine has a wing-span of 92 ft., a length of 49 ft. 6 in. and a height of 16 ft. Its cruising speed is 93 m.p.h. The freight, mail and newspaper services utilise the smaller type of single-engined Spad and Breguet.

The Compagnie des Messageries Aériennes is an association of aircraft constructors for the study and application of Aerial Transport, and among its Board of Directors appear the well-known names of Messrs. Bleriot, Breguet, Caudron, Farman, Morane, Luquet de St. Germain and Renault.—*Extract from R.A.F. Year Book.*

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F-ADAF
F-ADAG
F-ADBI
F-ACMA
F-ACMB
F-ACMC
F-ACME
F-ACMF
F-CMG
F-CMI
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COMMERCIAL AERONAUTICS.

The London Terminal Aerodrome.

AIR LINE ARRIVALS AND DEPARTURES.

ANALYSIS OF FIGURES.

For week ending Nov. 12.

LONDON—PARIS :

Handley Page Transport, Ltd., machines 6, passengers 46*. C.M.A. Air Line, machines 5†, passengers 5. Cie. Grands Express Aeriens, machines 3, passengers 4. Total, machines 14, passengers 55.

LONDON—BRUSSELS—COLOGNE :

Instone Air Line, Ltd., machines 8, passengers 26.

MANCHESTER—LONDON—AMSTERDAM :

Daimler Airway, machines 8, passengers, Manchester-London 53, London-Amsterdam 18.

LONDON—ROTTERDAM :

K.L.M., machines 10, passengers 5.*

SPECIAL MACHINES.

De Havilland Hire Service, machines 3, passengers 2.

Surrey Flying Services, machines 2, passengers 1.

Total number of trips by British machines : 27, carrying 146 passengers.

Total number of trips by foreign machines : 18, carrying 14 passengers.

Trips per day.—Monday, 3; Tuesday, 10; Wednesday, 6; Thursday, 13, Friday, 1; Saturday, 10; Sunday, 2.

STATISTICS.

Machines, 45; Passengers, 160; Crews, 73; Total Personnel, 233.

Corresponding week last year :—

Machines, 67; Passengers, 96, Crews, 99; Total Personnel, 195.

Corresponding week, 1920 :—

Machines, 52; Passengers, 79; Crews, 63; Total Personnel, 142.

* These machines also carry loads of freight.

† Some machines are freighters only.

NOTES OF THE WEEK.

DISPOSALS WORK.

Last week the Aircraft Disposal Company had to call in the services of several outside pilots to deliver machines which they had on hand for Brussels. On Sunday of last week Mr. Perry was testing a D.H.9, and Mr. Courtney left for Brussels on an Avro.

On Tuesday Capt. Stocken and Mr. Piercey each tested two Avros, after which both the above-named took an Avro to Brussels, as also did Mr. MacMillan and Mr. Courtney. Mr. Perry also delivered the D.H.9, which he had tested on Sunday, to the same destination.

The air lines have been hindered by fog and bad weather again this week, though there has not been an altogether blank day. When the Paris route has been impossible that to Cologne or Amsterdam has been passable and *vice versa*.

HANDLEY-PAGE PROSPECTS.

As an example of how the business community now wants to take aviation as a serious means of transport it is interesting to note that Handley Page Transport, Ltd., have received offers to carry between London and Paris 2,700 tons of freight in regular consignments in each direction for 12 months. As it happens the firm will hardly be able to provide enough machines to deal with all the passenger traffic which they expect next year when they are the only subsidised British company on the Paris route.

As this would mean an extra 4½ tons per day in each direction, it would mean either one new machine capable of carrying this load to make a return trip daily or else two extra double trips per day for W.8bs., and the Handley Page programme will not permit this on the present subsidy.

SOME INTERESTING FIGURES.

Mr. Cogni points out a very interesting fact with regard to the passengers now travelling from London to Paris in Handley Page machines. On consulting the visitors' book, which every passenger signs before embarking, it has been found that up till June this year 85-90 per cent. of the passengers have been composed of Americans, and the other 10-15 per cent. has been composed of British and other nationalities. Since June, up till the end of last week, although the total number of passengers carried has increased enormously, the American percentage has been reduced to 48, and the British one has risen to 37, the other 15 per cent. being made up of other nationalities.

THE BRUSSELS BOG.

The state of Brussels Aerodrome, which during the summer has been undergoing levelling operations, is now owing to the wet weather so appalling that it has become too dangerous to land such a heavy machine as a D.H.18 or 34. Even the D.H.9s and Avros used by the Belgians sink in as far as the axles.

Consequently the Instone Air Line have been compelled to refuse bookings to Brussels and fly direct to Cologne. For this length flight the D.H. 18s are the only machines with sufficient petrol capacity to make the trip, and if there is anything of a headwind they land at Lympne for petrol.

On Thursday General Festing went to Brussels in the "King's Cup" D.H.4a, piloted by Mr. George Powell, to inquire into the matter, and he returned on Saturday. Apparently he went as no other Air Ministry official could hope to escape being entirely submerged on alighting. There is another aerodrome to the east of Brussels, which has been "demobilised," and is now cut up, and there is also a new military aerodrome in course of construction.

Quite why Evère was ever chosen as the Brussels terminal aerodrome is something of a mystery, as it is all sand, so that the floors of the sheds built thereon are all cracking. But to the east of the city the surface is clay and much more stable.

One is told that under the International Air Convention the signatories are bound to keep their terminal aerodromes in good condition, and should they fail in this any of the other contracting powers who desire to use the aerodrome can have it put in proper order themselves and charge it up to the defaulting signatory.

DAIMLER DEEDS.

The Daimler Company are still carrying a surprisingly high number of passengers on the Amsterdam and Manchester air routes. Owing to an unavoidable shortage of pilots on Saturday, Mr. Brenard was despatched into Croydon to ferret out Mr. Courtney, who then took the morning machine to Manchester.

AN OFFICIAL TRAP.

On the same day Mr. Muir started for St. Inglevert on the Surrey Flying Service D.H.9, which they bought from the Duke of Sutherland. As he was taxying across the aerodrome he ran over one of the ought-to-be-submerged landing lights, the glass covering of which was broken, and this ripped up a tyre, necessitating a delay for changing a wheel. At the same time Mr. Youell was up on the Surrey Avro, carrying a joyrider.

Another Avro was in the air simultaneously, Mr. Shaw on the Wireless people's machine was conducting some tests.

In spite of the fact that there was thick fog on the Paris route M. Favreau went off on a "Goliath." It is generally believed that M. Favreau is fitted with fog-piercing eyes.

Mr. Alan J. Cobham returned from the Riviera on Thursday, whither he had been to pick up a fare for Cairo. Unfortunately the "fare" was ill, and was unable to proceed.

THE CHANNEL "LOSS."

A report appeared in the daily papers during the week to the effect that a civil machine was lost in the channel. It now transpires that a Fokker *en route* for Holland on Wednesday came over Folkestone in the fog, and that the pilot when over the Channel dived to the level of the water to try and pick up his bearings. He then proceeded across the Channel at a height of 50 ft. or so, and made Holland in safety.

However, as the eyewitnesses on shore lost sight of him they jumped to the conclusion that he had fallen into the Channel, communicated with the papers, and no doubt reaped a profitable monetary harvest for the excellent uplifting and helpful-to-aviation story.

GOOD C.M.A. WORK.

The C.M.A. Air Line's "Goliaths" now that they are fitted with Renault engines exhibit a very fine turn of speed, and their freight machines are kept very busy indeed.

Commander Deacon who is in charge of Lympne Aerodrome, has been at Croydon for the past week, and Mr. Glasson has temporarily replaced him at Lympne.

AN ELECTION INTERLUDE.

Sir Alfred Butt, who was Conservative candidate for Balham and Tooting, came to the aerodrome on Friday to address prospective voters. The meeting was held in a Government building next to the Trust House. Sir Alfred stated that he was here by permision or by courtesy (or words to that effect) of Instone's, and it seems rather curious that a private firm should invite a Parliamentary candidate to a Government-owned aerodrome, albeit he is a Conservative. One wonders whether similar facilities would be given to candidates of other denominations. Although one does not see why not, one hopes not!

Sir Alfred remarked that he was glad to see that civil aviation was a purely private concern, and he would strongly oppose nationalisation of aviation. Why are some candidates not better informed by their followers? They might have then told Sir Alfred that Croydon was a State-owned aerodrome and that all the air lines are heavily subsidised. Still, if he is returned to Parliament he will help to give the Conservatives a majority, and will just be pushed into a voting lobby from time to time, and so aid sensible men to pass sensible measures, so what does it really matter after all?

REGRETTABLE FACTS.

Messrs. D. Napier and Son, Ltd., are closing down their depôt at Croydon at the end of the month, and Mr. Hall is being withdrawn. This is a regrettable but necessary economy in view of the lack of Government orders.

The two-minutes' silence was observed on Saturday, a maroon being fired at the start and finish. During this silence a car with about the loudest engine one has heard clattered in at the gates with much hooting and banging.

Mr. MacIntosh is developing a decidedly French conversational manner, and it is now quite a pleasure to watch him. If he wants to talk while flying he will have to be fitted with an extra pair of hands.

The embarkation part of the aerodrome at the end of the tarmac is now getting very muddy, and one would suggest that it would be a good plan to obtain several cartloads of ashes to counteract this.

It is suggested that during the winter there should be a show

On August 7th, for the second time in succession, B.T.H. Magnetos helped Mr. J. H. James to secure the Aerial Derby Trophy for First Place.

His machine—"Mars I"—The Gloucestershire Aircraft Company's biplane, popularly known as the "Bamel," has a 450 H.P. Napier Lion engine, equipped with a **B.T.H. A.V. 12 Magneto** and this year averaged 179½ m.p.h., being 16 m.p.h. better than last year.

B.T.H. Magneto Successes.

Second Place was gained by Mr. R. A. de H. Haig, flying a Bristol Bullet machine, equipped with a 440 H.P. Bristol Jupiter engine and a **B.T.H. A.V. 9 Magneto.**

Third Place was secured by Mr. F. P. Raynham, in a Martinsyde F. 6 machine, equipped with a 200 H.P. Wolseley Viper engine and a **B.T.H. A.V. 8 Magneto.**

B.T.H. Magnetos were also fitted to the machines gaining **Second, Third** and **Fourth** places in the 1922 **Aerial Derby Handicap** and to the machines gaining **First, Second** and **Third** places in the **August Open Handicap.**

This is the fourth successive Aerial Derby in which B.T.H. Magnetos have been fitted to machines gaining the First and Second places!

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of all the aerodrome dogs. And an excellent "studdy" they would make! Anyway, it is difficult to believe that such a concentrated display of mongrel talent could be gathered together in one spot anywhere else.—G. D.

Stag Lane Aerodrome.

During the month of October the De Havilland Aircraft Co.'s air-taxi service accomplished 185 hours' flying time, and visited the following towns: Leeds, Hunstanton, Edinburgh, Portsmouth, Itford Hill, Liverpool, Bristol, Cardiff, Newmarket, Birmingham, Hull, Manchester, Paris, Vienna, Prague, Brussels, Cologne, Nuremberg, Bucharest, Constantinople.

The outstanding flight of the month was Mr. A. S. Cobham's flight to Constantinople and back. He left London on October 7th with Maj.-Gen. Sir Warren Hastings Anderson and Capt. Hargreaves as passengers together with a large quantity of luggage and sufficient oil for the out and return journeys. On the Sunday he reached Cologne, the next day Vienna, but on leaving on the Wednesday he broke the airscrew.

A new airscrew was rushed out and arrived on the Friday, but owing to the state of the weather he was unable to leave Vienna until the Sunday. He reached Buda-Pesth on that day and arrived at Constantinople on the following day. He remained in Constantinople for four days, taking various people from there to Chanak and over the Dardanelles. The return journey was accomplished in good time although the weather throughout the whole outward and return journeys was of the worst possible kind.

The whole of the return journey was made at a height of about 250 feet, it being necessary to follow the rivers Danube and Rhine, the visibility being a minus quantity. These rivers were followed throughout all their various bends which made the journey much longer than would otherwise have been necessary, and at times the machine was flying at a lower level than the surrounding country.

The machine used, Mr. A. S. Butler's D.H.37 (Rolls-Royce "Falcon") gave absolutely no trouble, and proved itself to be eminently suitable for long cross-country touring.

Another good flight was Mr. C. D. Barnard's flight to Prague with Maj.-Gen. Sir Sefton Brancker. The outward journey from Lympne to Prague was accomplished in one day.

Photographic work has accounted for the large number of towns visited and this work largely accounts for the amount of flying time accomplished by De Havilland machines.

Five pupils are receiving instruction at Stag Lane and one pupil after only one week's instruction, a total of 1 hour 25 minutes' flying time, has gone "solo" and was expected to obtain his "ticket" last week.

The London Terminal Aerodrome.

For a long time past there have been tentative suggestions for finding an aerodrome more accessible to London than is Croydon. When some two and a half years ago the Air Port moved from Hounslow, Major Greer, who was then C.A.T.O., went very thoroughly into the question and examined all possible sites in and around London, and eventually came to the conclusion that Croydon was the most suitable. Such places as Wormwood Scrubbs, Barnes Common, Cricklewood and Hendon were all considered.

Now a committee constituted of Maj.-Gen. Sir W. Sefton Brancker, Air Vice-Marshal Sir W. G. Salmond, Brig.-Gen. F. H. Williamson, Mr. J. C. McBride, Mr. G. Holt Thomas, Mr. Stanley Machin, Mr. H. J. Yates, Sir William Joynson-Hicks, Lt.-Col. Sir Frederick Hall, Brig.-Gen. Sir H. Capel-Holden, Col. M. O'Gormon, and Sir Henry White Smith has beeen set up to enquire into the possibilities of a future site.

It is understood that no immediate move is contemplated and this committee is really the result of Sir Sefton Brancker's foresight and has been formed to keep its collective eye on events several years ahead. It is to be hoped that the committee will sit more as a judical body and will call for the opinions of pilots who will have to fly commercial machines from any projected site that the committee may consider, and that they will also take the opinion of the designers of the said commercial aircraft.

It seems that the only real solution to the problem will be to make all commercial aircraft of amphibian type and utilise the Thames at Westminster. As, however, during the winter months there are very many days in which all London is shrouded in mist when Croydon is clear owing to its position outside the fog area, this will always have to be retained a Government aerodrome.

The simplest solution of the immediate problem will be to enlist the sympathy of the London, Brighton and South Coast Railway and run trains direct from Victoria and London Bridge by way of the Aircraft Disposal Company's siding at Waddon direct onto the aerodrome to connect with the incoming and outgoing machines. By this method passengers could get from Victoria right to the machines themselves in seventeen minutes.

"COME INSIDE."

On Friday next the various Air Transport Companies have been invited to send machines fully loaded to Wormwood Scrubbs with a view to proving or disproving its suitability to be used as the London Terminal Aerodrome.

Handley Page Transport will send a W.8b, which will leave Croydon at 09.30 hours, and doubtless the other firms will also send machines.

Members of the Advisory Committee appointed to discuss the question of an aerodrome nearer to the centre of London than is Croydon will be present.

Wormwood Scrubbs, apart from being too small and in the river fog area, is completely surrounded by buildings and factories.

Should any official be guilty of the crime of sanctioning Wormwood Scrubbs as an aerodrome, there is a well-known establishment adjoining where he should be made to reside for some time at the expense of the British taxpayer.—G. D.

A GERMAN COMMERCIAL MOVE.

It has been stated in the daily Press that the German aircraft firm known as Rofawerke, which is the outcome of the genius of the Doctor-Engineer Rohrbach, will open a new factory at Copenhagen on December 1st in order to evade Allied control. Mr. Erik Hildesheim, who for many years has been the Scandanavian correspondent of THE AEROPLANE, is to be the general manager. It is stated that the intention of the firm is first of all to build seaplanes each with two 360 h.p. Rolls-Royce engines, and later on to make big four-engined machines.

With regard to this statement Mr. Basil Johnson, the general manager of Rolls-Royce Ltd., writes: "We should be obliged if you would make it clear to your readers that we are not supplying engines to the Rofawerke firm, nor have we had any communication with them. It seems probable, therefore, that of the Rofawerke firm are fitting Rolls-Royce aero engines to aircraft intended for German use, the engines are the old type of engine (known as 'Eagle VIII.'), which were designed and built many years ago, and are now completely out-of-date. We are now producing a later and considerably improved design known as the 'Eagle IX.' It is known that the British Government had a large number of the now obsolete 'Eagle VIII.' engines on hand at the time of the Armistice, and we believe that these redundant engines are still being disposed of, directly or indirectly, to foreign Governments and others."

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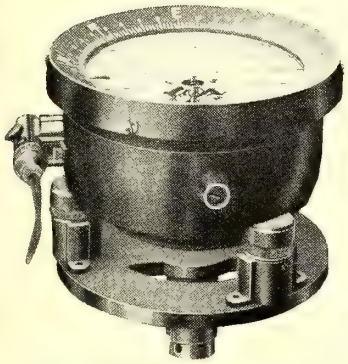
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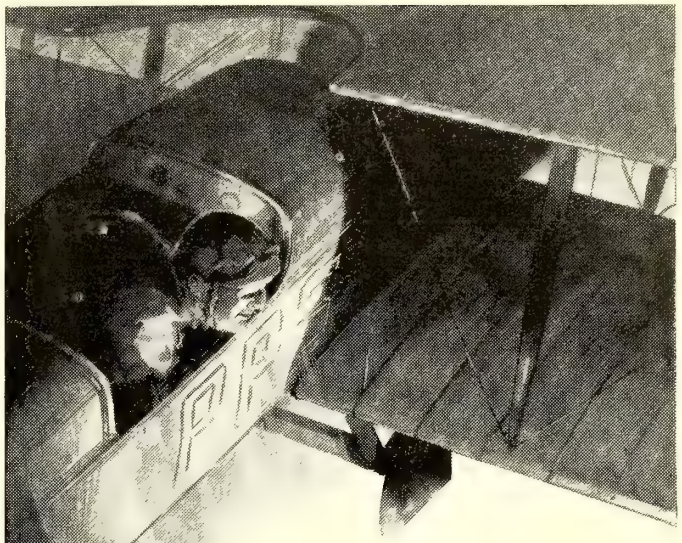
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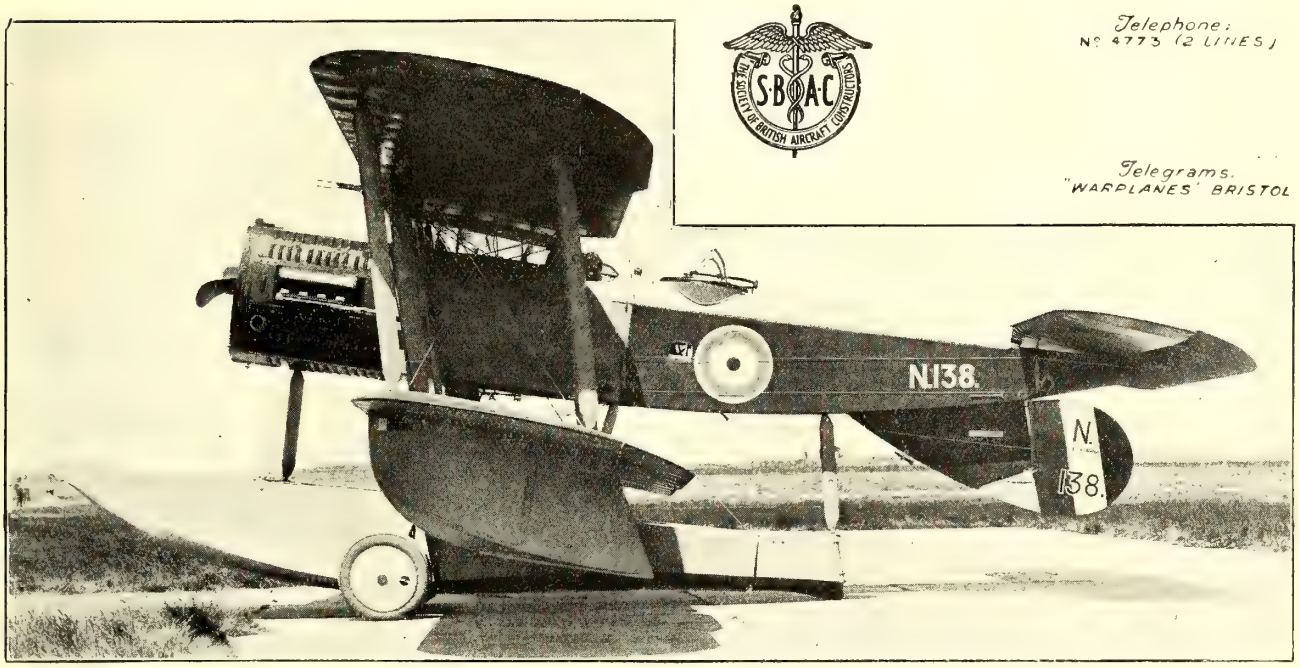
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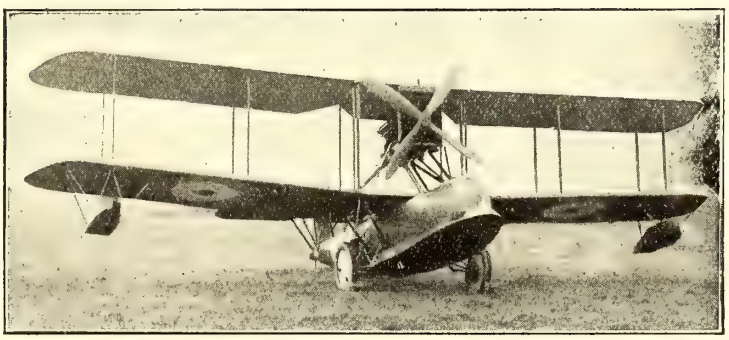
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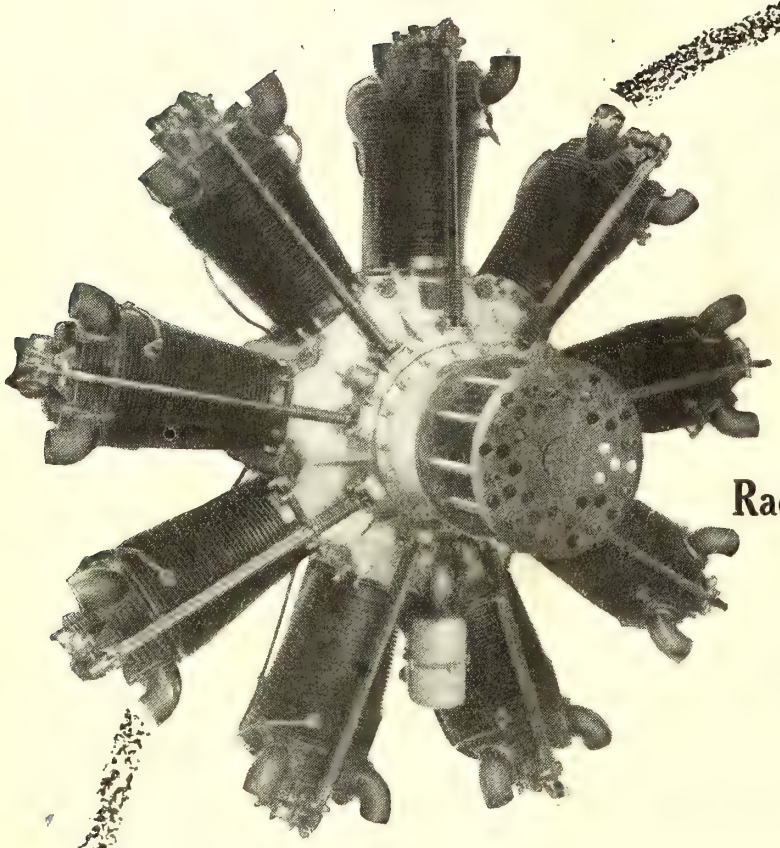


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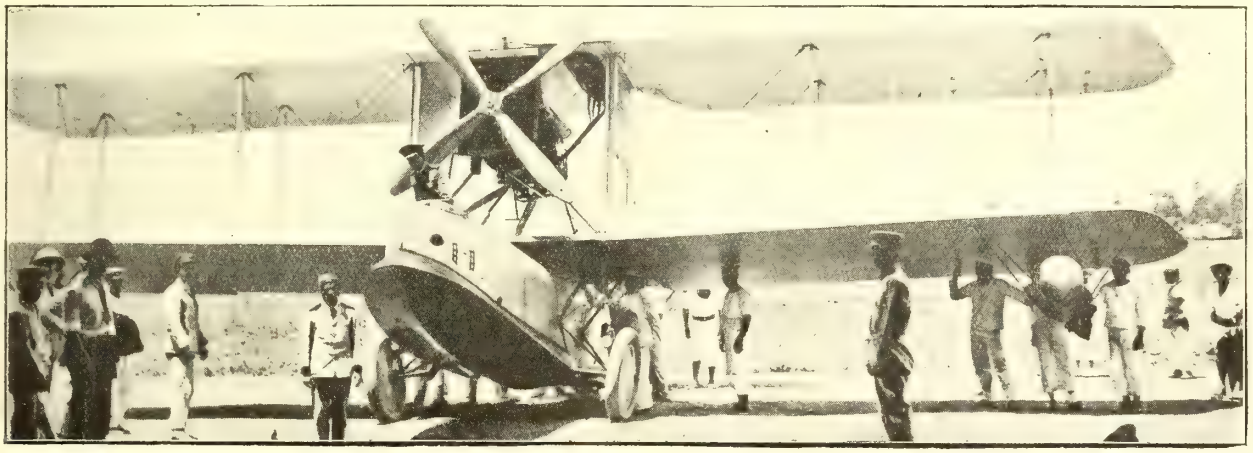
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BRITISH ENTERPRISE IN JAPAN.



AN AMPHIBIAN AT WORK:—A Supermarine "Seagull" Amphibian Flying-Boat (Napier "Lion" Engine) in the service of the Japanese Navy.

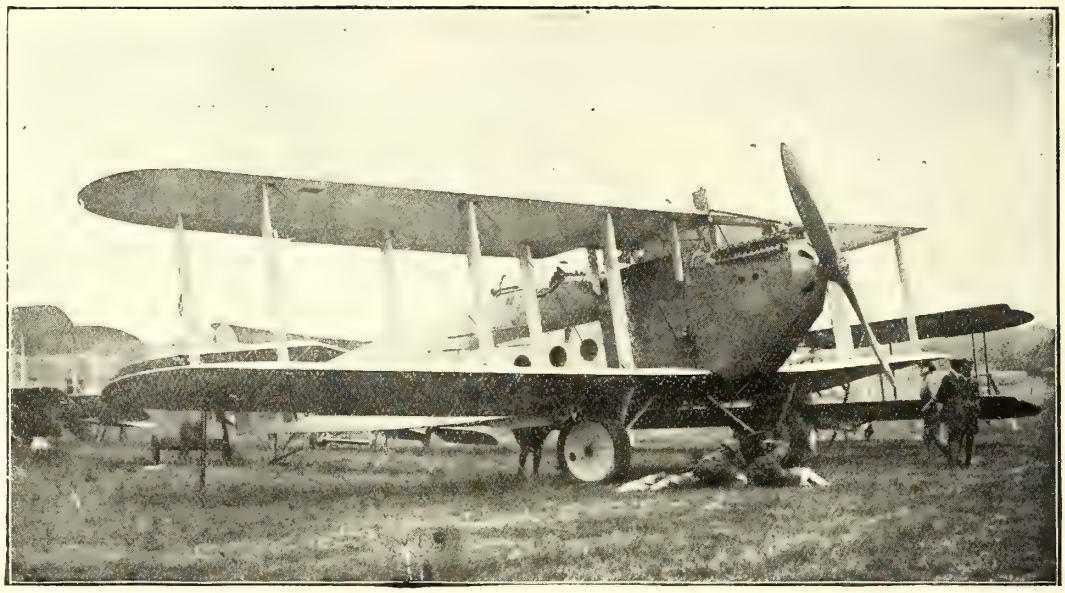
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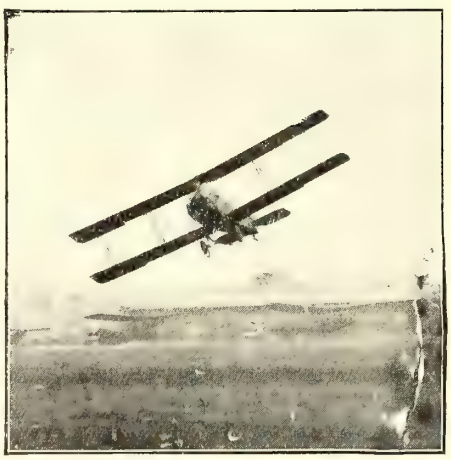


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ON THE GLIDING EPIDEMIC—II.

The Spread of Interest.

In between the two extremes of scientific experiments by the Air Ministry and model gliding competitions among workshop personnel one hears of quite a number of people who intend to build gliders or to have gliders built for them. A number of inquiries have come in to the Aircraft Disposal Company for scrap material which is suitable to be transformed into gliders. Also certain firms which have already built gliders have had serious inquiries from people right outside the Aircraft Industry or the Air Force.

The interest is also growing overseas and one has already had in this office a request for information as to the building or purchase of gliders from one of the nearest of British Overseas Dominions. This suggests that when the full descriptions of the German and British soaring competitions reach our Overseas Dominions there will be quite a growth of interest among the aeronautical inhabitants thereof.

The Real Use of Gliding.

As one said some weeks ago one has no belief in the permanent popularity of gliding or soaring as a sport and it is quite likely that all this present enthusiasm may be comparatively short-lived. But one is perfectly certain that as one phase of the scientific study of aerodynamics gliding is of the very highest value and it is to be hoped that a serious effort will be made to collect from all quarters whatever information is available concerning the results of future experiments.

The directions in which gliding experiments are most useful are in the study of the actual behaviour of wings of different sections with different loadings and more particularly in the effect of differently shaped wings and fuselages on control surfaces. It was found most distinctly at Itford that the general ignorance on the subject of controls was appalling.

Enlarging rudders for example merely decreased rudder control instead of increasing it. Ailerons which apparently agreed with the most advanced theories of design either produced no effect at all or produced an effect entirely opposite to that which was intended.

Side areas which ought to have been right according to power-driven experiences proved to be altogether wrong. So evidently there is room for a whole series of the most careful and elaborate experiments to discover what does really happen to an aeroplane when air currents are not complicated by slipstream effects and by gyroscopic forces from an airscrew or engine.

When the perfectly controllable and at the same time highly efficient glider has been produced then it may be assumed that we are beginning to know something about aeroplanes. After which we may proceed to produce low-powered aeroplanes along similar lines and so in time we may get right away from the power-driven box-kite of to-day which in the light of modern ideas puts up a wonderful performance through sheer brute force and abysmal ignorance.

The Minimum-Powered Kite.

It seems well here to add a word of warning, for one has heard much talk of putting small engines into existing gliders, or into precisely similar machines, with the idea of producing low-powered aeroplanes. A few days ago a most interesting letter arrived from an ex-R.A.F. officer, Mr. A. G. T. Perkins, who is enthusiastic over what he is pleased to call "auxiliary engined gliders." Personally one objects to the term, for a glider is definitely a glider. If it is a glider it has not got an engine, so that's that. One may talk of "the Sport aeroplanes" or "the poor man's aeroplane" or "the minimum-power kite" or anything of that nature, but a glider is just a glider. However, let the enthusiast speak for himself. Here is the essential part of what he has to say:—

"Before I take up your time further, I should like to state that I am not talking merely with enthusiastic ignorance, since I had some 400 hours flying in the R.F.C. and R.A.F. Therefore I claim to have a little knowledge of the aerial birdcages in which man achieves flight at the present day. I managed to be at Itford every day save one during the gliding week, and from what I saw I fully agree with your theory as to the influence of the 'cups' on the wind conditions there. At the Wasserkuppe, so far as one can judge, the physical conditions producing the necessary vertical components were somewhat different. At the Puy de Combegrasse the anticipated conditions apparently failed to function, why no man knoweth! All of which goes to show that we have yet much to learn about the laws governing the production of air currents suitable for soaring flight.

"Now I maintain that to sit indefinitely over a 'cup' on Firle Beacon like a hen on her eggs, is by no means the best method of acquiring this knowledge. I do not wish to infer that we have nothing further to learn in the construction of machines suitable for performing successfully, even under such favourable conditions as obtained at Firle. We most certainly have. But at the same time we should also think of investigating the possibility of other localities for achieving successful soaring flight.

"It is here that the possibilities of the auxiliary-engined glider might well be exploited. By an auxiliary-engined glider I refer to a machine equipped with an engine of, say, not more than 8 h.p. I should suggest the offering of a prize for a race between such machines. The race would be over, say, 100 or 200 miles of open country and not merely along the course of a range of hills. The prize should be awarded not on time alone but to the machine finishing within a given time limit *with the minimum petrol consumption*. The use of the engine would thus simply be to tide the machine over dud patches, the pilot knowing that every minute his engine was exerting any appreciable power was lessening his chance of winning the prize.

"Now I come to the question of the pilots in such a race, and this is where the whole future of the Aircraft Industry may conceivably be affected. You have very frequently—and most rightly—emphasised in the pages of THE AEROPLANE the necessity for the participation of what we may term the *sporting owner* in the various events of the year. But sporting owners under present conditions are bound to constitute a small class, i.e., a small proportion of the moneyed rich. A modern aeroplane, even a machine like the Baby Avro, is not the sort of vehicle that can be run by the man in the street.

"I wish now to bring to your notice a tremendous crowd of potential sporting owners, namely those of us who caught the fever of the air during our flying days of the war. Now we fly no longer, not from choice but from compulsion. Even gliding is too expensive a sport for the great majority of us. The transport to and subsequent elevation of gliders up declivities like Hill 60 is not the sort of task that can be performed by love alone. And having got there and having been launched the chances are that stress of circumstances will compel us to land on farmer Jenkins' young wheat, with subsequent benefit to farmer Jenkins' pocket and detriment to our own.

"But give us a machine of the type I have suggested and the highway of the air is open to us once more. We could get off the floor within a reasonable distance of our front doors and we should have some means of controlling the spot where we once more made contact with Mother Earth. Our running expenses should be no more than those of the motor-cycles with which most of us equipped ourselves on demobilisation, *faute de mieux*, and to the extreme annoyance of sundry old women and errant poultry. At the present time I ride a motor-cycle not because being shaken about like a pea in a drum appeals to me but because it is the nearest approach to the sensations of other days which I can afford. If some enterprising firm were to turn out a glider with a little twin engine of say 7/8 h.p. attached I—and I am sure I speak for the whole class of ex-pilots—would pawn my last pair of trousers and give up smoking in order to acquire one.

"Think what it would lead to. We should form clubs, like the motor clubs of to-day. We should organise inter-club races and similar competitions. We should put thousands of pounds into the pockets of the Aircraft Industry, to the rapid

development of this at present not very exuberant child. As time went on we should teach the young idea to follow in our footsteps. I fancy that the country would have a very definite use for these disciples of ours in the event of another war, which God forbid. And what healthy young fellow would not prefer some sort of aerial transport to the motor-cycle which claims him in his hundreds to-day?

"You may argue that the auxiliary-engined glider is of no commercial value despite its undoubted scientific and sporting uses. But it can be said that the motor-cycle and small car are of no commercial value to the motor industry. The auxiliary-engined glider will in time occupy an analogous position in the Aircraft Industry.

"I have used throughout the clumsy term 'auxiliary-engined glider' because I wished to emphasise the fact that the type of machine I ask for is a glider first and an aeroplane afterwards, not merely a low-powered aeroplane. In such a machine speed and rapid climb are not required. What is looked for is reasonably light weight and wing-loading and good aerodynamical qualities at low speeds, say round about 30 m.p.h., so that soaring may be possible in fairly light winds.

"I do not think this is an impossible ideal. I seem to remember that A. V. Roe got off the ground with the aid of an 8 h.p. Jap engine very early in the history of flight. At Itford I noted that Olley during his big flight had 90 lbs. of ballast in his nose. Ninety pounds of engine would be much more use! I believe the subject is one which may be of vast importance and calls for imaginative and sympathetic treatment."

The Possibilities.

One wishes that the writer of that letter were right. But one fears that he gives credit to too many other people for being as enthusiastic as he is himself. And he is too optimistic about the possibility of producing a low-powered aeroplane at a correspondingly low price. And even if it could be produced at the price of a motor-bicycle there is another weighty factor to be considered.

To own an aeroplane even of the smallest possible type a certain amount of money is necessary. Now even the lad who has only enough money for a motor-bicycle is a fair mark for some designing female or other—hence the pillion, more vulgarly known as the flapper-bracket. It follows therefore that he who acquires a minimum-powered kite will sooner or later have to get a two-seater. And that means more power. And that means a bigger engine. And that means a stronger aeroplane. And that means more weight. And that means still more power. And so on.

What one does believe is that experiments with gliders will so improve the aerodynamic efficiency of aeroplanes that we shall be able to produce a two-seater or three-seater with about 50 h.p. which will have a really good performance—say a cruising speed of 90-100 miles per hour and a landing speed of 20-25 miles per hour. But as such a machine must cost several hundreds of pounds and as quite a good motor-car can be bought for the price one cannot see a very big market for that class of machine.

There is a certain market for the class abroad. For example Major Kingsley of the River Plate Aviation Co. is now on his way to the Argentine having left orders for several aeroplanes of types which are as nearly in that class as our present-day methods of design and construction permit. One learned before he left that the Bristol Co. was the only firm ready to supply his needs on the terms necessary in the Argentine, but that one French firm and two ex-German firms now in neighbouring countries are to supply him with suitable machines on suitable terms. Which seems a strange commentary on British commercial enterprise, though the result might have been different if the Aircraft Industry had had Air Ministry orders in hand and so had been able to do foreign business on the terms usual in other trades.

On the whole one believes that the great mass of the people will ultimately take to the air co-operatively. That is to say they will fly many at a time at a low price per head in big joy-ride machines and air-liners. The air-'bus rather than the air-limousine will be the money-maker for the Aircraft Industry.

The Danger.

Still these gliding experiments will certainly result in a certain number of people fitting engines into ordinary gliders. When they do it can only be hoped that the results will not be disastrous.

Some of our scientists say that the structure of a good glider is strong enough to stand the strains set up by such an engine as say an A.B.C. car engine or an 8 h.p. Indian motor-cycle engine or one of the little German Haackes or American Lawrances. Perhaps they are right so long as all goes well. But remembering how some of the gliders of our scientists glid and how the aeroplanes of the past designed by "the best brains" flew one is not inclined to believe too much in scientists.

Before one believes them one wants to see what happens to a transformed glider when an airscrew breaks and an 8 h.p. Indian runs wild in its nose; or what happens when a cylinder blows off a "flat twin" and leaves the other thumping unbalanced. One has seen a quite well-behaved engine of 190 h.p. or so buck itself clean out of an ordinary aeroplane when a "prop" has burst and one has not overmuch confidence in the resistance to unbalanced stresses of a machine which apparently is held together by 24 gauge wire, fabric, glue, dope, some bits of thin ply-wood and hoping for the best.

Therefore one would beseech the advocates of the minimum-power kite to go easy. *Pas de zèle, surtout pas de zèle. Festina lente.* Softly, softly catchee monkey. And any other warning proverbs which may be apposite. It never pays to be a thruster. Let somebody else break his neck experimenting.

But, despite all the scoffers, the glider and the results to be achieved therefrom will be of very great use to the progress of aviation. The Air Ministy as usual in these days is moving in the right directon. The results of its work will be watched with the keenest interest by everybody who is concerned with and for the progress of flying.—C. G. G.

R.A.F. INTELLIGENCE.

Appointments.

Air Ministry, November 7th.

Air/Com. C. L. Lambe, C.B., C.M.G., D.S.O., from Air Ministry (D. of E.) to Half-Pay List, 1/8

Grp/Capt. E. F. Briggs, D.S.O., O.B.E., from H.Q., R.A.F., Iraq, to command Basrah Group H.Q., 1/10.

S/Ldrs. J. H. Lidderdale, O.B.E., from Air Ministry (Dept. of A.M.P.) (D.D.O.) to R.A.F. Depot (Supernumerary), 6/10; F. N. Smartt, M.B., B.A. The notification which appeared in R.A.F. Intelligence, dated 1/11, wherein this officer was posted from R.A.F. Depot to No. 1 Group H.Q., is hereby cancelled. H. E. M. Watkins, A.F.C., from H.Q., R.A.F., Iraq, to command Rest Camp (Iraq), 1/10; W. Sowrey, D.F.C., A.F.C., from R.A.F. Depot to No. 1 F.T.S., 13/10. Substituted for the notification which appeared in R.A.F. Intelligence, dated 1/11.

F/Lts. A. J. Brown, D.S.O., from R.A.F. Central Hospital to H.Q.C.A. (Supernumerary), 30/10; B. F. Beatson, D.T.M., from Research Laboratory and M.O.S.I. to R.A.F. Depot (Supernumerary), 6/11; A. Williams, from I.A.A.D to H.Q., R.A.F., Cranwell, 13/11; H. E. Hayes, from H.Q., R.A.F., Cranwell, to I.A.A.D., 8/11; H. V. German, from H.Q., R.A.F. (Iraq), to command R.A.F. Prison (Iraq), 1/10; L. O. Brown, D.S.C., A.F.C., from H.Q., R.A.F. (Iraq) to Basrah Group H.Q. (Iraq), 1/10; H. B. Russell, A.F.C., from H.Q., R.A.F. (Iraq), to Rest Camp (Iraq) for duty as Adjutant, 1/10; C. S. Richardson, M.B.E., from No. 6 Squadron to H.Q., R.A.F. (Iraq), 17/7.

Air Ministry, Nov. 14th.

Group/Capt. F. V. Holt, C.M.G., D.S.O., to R.A.F. Depot (Supernumerary) pending disposal. On cessation of secondment for duty with the Chinese Government, 1/9

Wing/Cmdr. A. V. Bettington, C.M.G., from H.Q. No. 12 Wing, Ireland, to R.A.F. Depot (Supernumerary), 11/10.

S/Ldrs. F. Sowrey, D.S.O., M.C., A.F.C., from No. 100 Squadron to Basrah Group H.Q. (Iraq Command), 3/11; C. C. Miles, M.C., from C.F.S. to Half-Pay List. 10/11. F. C. Jobson, from R.A.F. Depot to H.Q. Inland Area, 3/11; A. S. Glynn, M.B., from H.Q. Inland Area to R.A.F. Depot (Supernumerary), 3/11.

F/Lts. L. E. Taylor, M.B.E., from Seaplane Training School to Electrical and Wireless School 1/11; A. Jukes, M.B.E., from Irish Stores and Repair Unit to R.A.F. Depot (Supernumerary), 12/8; W. F. Wilson, M.C., M.B., from No. 60 Squadron (India) to No. 28 Squadron (India), 9/10; A. Briscoe, M.B., from No. 28 Squadron (India) to H.Q. Iraq Command (Supernumerary), 15/10; R. Hutton, to Basrah Group H.Q., on appointment to S.S. Commission, for duty as officer in charge Inland Water Transport, 1/10; H. G. Jones, from No. 4 Stores Depot to School of Photography (Supernumerary), 24/9; T. L. P. Harries, M.B., from R.A.F. Depot to R.A.F. Hospital, Cranwell, 8/11.

The Iraq Command.

The Air Ministry announces that with effect from October 1st 1922, the R.A.F., Iraq, is designated the "Iraq Command."

The A.O.C., Iraq Command, is responsible for the command and administration of all units of the Royal Air Force, the British Army and the Indian Army stationed at Iraq.

The command of the army units forming the infantry brigade, i.e., infantry battalions, artillery units and sapper and miner company, will be vested in the Colonel Commandant, Infantry Brigade, who will be under the orders of the A.O.C.

The Colonel Commandant will, on all questions of policy and all major questions of administration in regard to the forces under his command, address the A.O.C., who will communcate with the Air Ministry on such matters.

The Colonel Commandant will communicate direct with the War Office, or the Commander-in-Chief in India, on minor administrative questions regarding the military forces under his command.

The A.O.C. will be directly responsible for the command of the Iraq Levies, and for the general administration of the force. Detailed administration of the Levies will be the

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149 MILES PER HOUR.

The Aerial Derby—open to all the World—was won for the second successive year by the Napier-Gloucestershire aeroplane, piloted by Mr. J. H. James, at an average speed of

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responsibility of the Officer Commanding the Iraq Levies, and of his staff. No responsibility in this respect will devolve on the military staff.

The Staff College, Quetta.

Wing/Cmdr. R. P. Mills, M.C., A.F.C., R.A.F., has been nominated by the Commander-in-Chief, India, for admission to the Staff College, Quetta.

R.A.F. Gliding.

One gathers that gliding experiments are to be made not only at Salisbury Plain, but at Winchester, Halton and any other station where there are reasonable hills. The scheme is, as stated last week, to give pupils training on gliders instead of on power-driven machines.

THE GRAND PRIX DE PARIS.

For November 11th-12th, the Aero Club de France organised a competition for commercial aeroplanes at Le Bourget for a sum of 100,000 francs, given by the Secretary of State for Aeronautics. This sum was divided as follows: 1st prize, 80,000 francs and a cup value 5,000 francs; 2nd prize, 20,000 francs and a silver-gilt plaque; and third prize, a silver-gilt plaque.

The machines had to be passenger-carriers and to have at least two pilot's seats and five passenger seats of certain dimensions, and a crew of two had to be carried throughout the tests. A useful load which must be an exact multiple of 100 kgs. with a minimum of 500 kgs. had to be carried, and this could be made up of 80 kgs. of ballast in or under each passenger seat, with 20 kgs. of ballast in the baggage compartment for each passenger.

Classification was obtained partly by characteristics of the machines including the H.P. necessary for each passenger, wireless gear carried, starting of engines in flight and on the ground, etc., and partly by the actual performance under test.

The course was Le Bourget—Cormeilles—Toussus-le-Noble—Orly—Chelles—Le Bourget.

Competitors had to make two 300 km. flights with a compulsory landing half-way, and one 600 km. flight without an intermediate landing. Any forced landing during the above flights eliminated a competitor, similarly any competitor who failed to attain a commercial speed of 100 km.p.h. was liable to disqualification.

The entries were:—(i) Ateliers de Mureaux "Express-Vimy" (2-370 h.p. Lorraine (Dietrich), pilot, Labouchère; (ii) Breguet "Leviathan" Type XX. (4-225 h.p. Breguet), pilot, Thierry; (iii) Caudron "C 74" (4-300 h.p. Hispano-Suiza), pilot, Poirée; (iv) Farman "F.90" (300 h.p. Salmson), pilot, Pessoutrot; (v) H. Potez Type X (3-180 h.p. Hispano-Suiza), pilot, Douchy. The Potez "X" arrived too late owing to having had engine trouble and was unfortunately ruled out of the competition.

Owing to bad weather the competition was postponed until Tuesday, November 14th, when conditions were only slightly better. The circuit of Paris had to be covered 14 times with a landing at Le Bourget at the end of the 7th lap, and this circuit was marred by the fatal accident to M. Poirée on the Caudron C.74. It appears that whilst on his 5th lap one of his back airscrews broke damaging his fuselage and controls thus causing him to lose control. The machine was found completely crashed in a field near Aulnay-sous-Bois.

Of the remaining three machines the Breguet "Leviathan" had to land with petrol system trouble.

On the one long flight round Paris of 600 kiloms., the Express-Vimy had radiator trouble thus leaving Bossoutrot to complete the course on his own, his time for the circuit being 4 hours 7 mins. 12 secs. making an average speed of 144 kiloms. per hour. It would appear that the object of the competition, to prove the reliability of commercial aeroplanes, was lost, as in the first place weather caused the postponement of the competition, secondly only one machine eventually completed the course, and that machine could hardly be called a modern commercial aeroplane, and thirdly M. Poirée's fatal accident involving the death of himself and two mechanics was seized upon by the Press in a manner that could hardly be termed helpful.

THE BISKRA GLIDING CONTEST.

At the French gliding contest, which is to take place at Biskra from January 3rd to 31st next, Great Britain will be represented by Mr. F. P. Raynham, who will have Mr. R. Vaughan Fowler (late of the British Aviation Mission to Japan) as his chief of staff.

Mr. Raynham is anxious to find someone who would like a holiday in Algiers about that time, and who would like to proffer a little financial aid. The said holiday would cost about £150.

Mr. Raynham hopes to take two gliders, one of which will be the Handasyde glider which he used at Itford. This has now been fitted with controllable controls.

M. POIREE.

Not only France but the whole world has suffered a very great loss in the death of M. Poirée. He was a pilot of long experience with a very distinguished war record in Russia up to the time of the revolution.

Since the war he has been chief pilot to the Caudron Co. and he succeeded in annexing a number of high awards on machines of considerable antiquity including the 1920 Michelin Competition. He also secured many prizes at the 1921 Monaco meeting.

MR. NEWELL.

Mr. William Newell, commonly known as "Professor" Newell, the well-known parachutist was recently drowned in the course of a parachute exhibition in Denmark. He had made nearly 600 parachute drops in the course of a long career as a parachutist and was the first person to do a parachute drop from an aeroplane in this country.

The circumstances under which he met his death deserve to be recorded in that they should be a warning to all other users of parachutes. Capt. H. C. Peirce, late Officer in Charge of the Parachute Experimental Flight, R.A.F., journeyed specially to Denmark on behalf of E. R. Calthrop's Aerial Patents Ltd. to investigate the matter and was able to collect irrefutable evidence both from the pilot of the machine and from others who saw the accident.

Mr. Johansen the pilot said that he was flying at a height of about 600 ft. on a Roland D.VII when Mr. Newell left the machine. Two seconds afterwards he felt a severe shock and on looking round found Mr. Newell trailing, with the parachute only three-quarters out of the container. He thereupon in accord with Newell's signals flew out over the sea, did a slow left-hand turn and glided gently till quite close to the water and seeing a motor boat made towards it. Mr. Newell released himself from the parachute a hundred yards from the boat and dropped about 60 feet into the water. He swam at least 20 yards towards the shore and then gave up as though exhausted. Several motor boats made for the spot and Mr. Johansen, who could see Mr. Newell in the water, flew round and round directing the boats which picked up Mr. Newell within a few minutes. On being brought to shore doctors applied artificial respiration but after two hours gave it up as hopeless.

The opinion of Mr. Johansen was that Mr. Newell could have swum the remaining few yards to safety but was hampered by the harness he was wearing which was of his own design. Personally one would rather think that the 60-foot drop flat into the water caused concussion or some internal lesion which overcame him after he had swum a few yards.

The primary cause of the accident was quite clear. The "Guardian Angel" parachute with which Mr. Newell had been operating had been used on several previous occasions and had been repacked with unskilled assistance after each drop. The casing in which the parachute was packed on each occasion was badly worn by constant use, and it is fairly certain that defective packing caused the parachute itself to stick in the worn casing so that it only came partly away when he made his last drop. It is significant that as soon as Mr. Newell released himself from the parachute the parachute itself floated away from the machine, thus showing that it was being held by some internal jamb caused by the weight pulling on the parachute.

One regrets to hear that Mr. Newell has left his wife and five boys (ranging in age from one to fifteen) totally without means. A fund has been opened to help them which fund will be under the management of the St. Mary's, Harrow, Parochial Relief Committee. Those who wish to help are invited to send their subscriptions to the Revd. Prebendary F. W. Joyce, the Vicarage, Harrow; E. R. Calthrop's Aerial Patents, Ltd., 423 Edgware Road, W.2; or C. G. Spencer and Sons, 56a, Highbury Grove, N.5.

PERSONAL NOTICES.

ENGAGEMENTS.

HANMER—SPENS.—The marriage arranged between R. H. Hanmer, M.C., R.A.F., and Miss Mary Helen Spens will take place in Brompton Parish Church on December 19th.

LE GALLAIS—BEEBE.—The engagement is announced between Capt. P. E. M. Le Gallais, A.F.C., the Royal Sussex Regt., eldest son of the late Col. Mark Le Gallais and Mrs. Le Gallais, of Broadlands, Jersey, and Margaret Cecelia, only daughter of Mr. and Mrs. Henry J. Beebe, of Springfield, Massachusetts, U.S.A.

RABAGLIATI—LARPENT.—A marriage has been arranged, and will shortly take place, between Lieut.-Col. Cuthbert Euan Charles Rabagliati, M.C., A.F.C., Chevalier du Légion d'Honneur, late K.O.Y.L.I. and R.F.C., and Clarissa Catherine de Hochepied-Larpent, only daughter of the late John Melvill, ninth Baron de Hochepied and the Baroness de Hochepied.

MARRIAGE.

LIVINGSTONE—PRIMROSE.—On November 14th, 1922, at St. Martin's Registry Office, London, W.C., Brig.-Gen. Guy Livingstone, C.M.G., late R.A.F., and Mrs. Diva Amelia Primrose.

BIRTH.

ROGERS.—To Maggie, wife of Walter Rogers, late Serjt. R.A.F. a son, at 1, Bonnington Square, Vauxhall, on November 14th.

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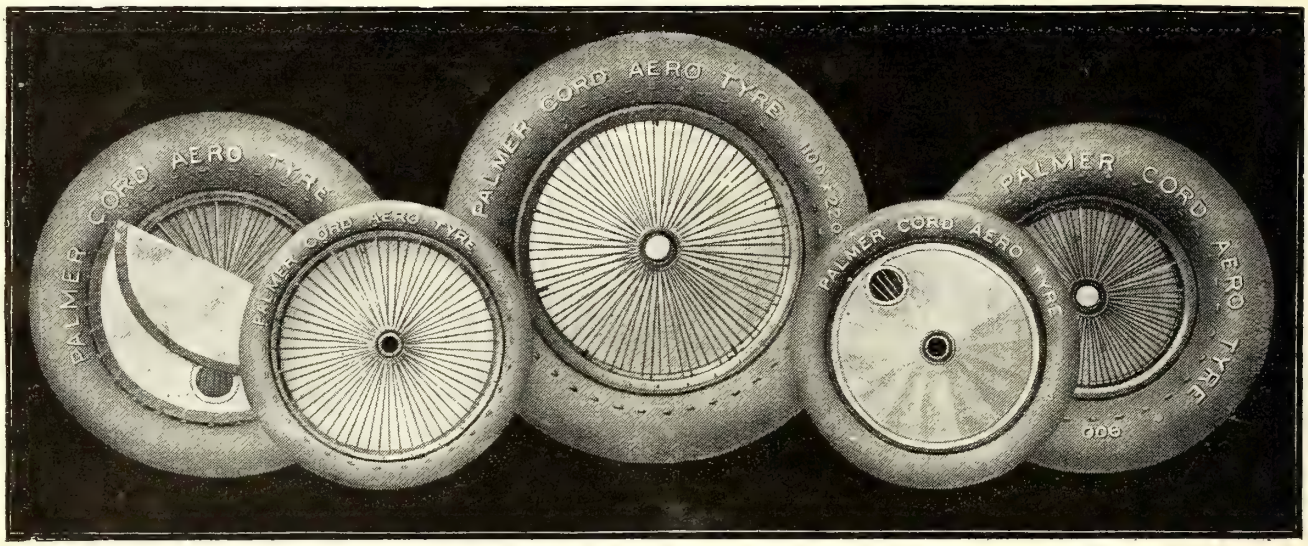
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450×60	30	89.	31.75	Central
,,	138	130.	38.09	Central
575×60	21	160.	28.	Central
,,	34	150.	31.75	104/46
,,	111	150.	38.09	104/46
600×75	21	160.	28.	Central
,,	34	150.	31.75	104/46
,,	111	150.	38.09	104/46
700×75	78	178.	44.45	132 46
,,	79	178.	44.45	Central
,,	100	178.	38 09	132 46
,,	101	178.	31.75	132/46
700×100	77	178.	44.45	132/46
,,	92	185.	55.	135/50
,,	95	185.	55.	Central
700×100	96	178.	55.	132/46
,,	99	178.	38.89	132/46
,,	112	150.	38.09	Central
650×125	119	178.	55.	132/46
750×125	77	178.	44.45	132/46
,,	92	185.	55.	135/50
,,	95	185.	55.	Central
,,	96	178.	55.	132/46
,,	99	178.	38.89	132 46
,,	112	150.	38.09	Central
800×150	82	185.	55.	135/50
,,	85	185.	55.	Central
,,	36*	185.	55.	135/50
,,	40*	185.	60.32	135/50
,,	152	185.	66.67	135/50
,,	163*	185.	66.67	135/50
1000×150	131	220.	66.67	Central
,,	102	185.	55.	125/60
,,	141	250.	80.	Central
,,	201	185.	60.32	125/60
1000×150	209	185.	55.	Central
,,	210	185.	60.32	Central
1000×180	148	220.	80.	Central
,,	149	185.	55.	Central
,,	155	220.	66.67	Central
900×200	107	185.	55.	Central
,,	108	185.	55.	125/60
,,	128	220.	66.67	Central
,,	137	250.	80.	Central
,,	202	85.	60.32	Central
1100×220	134	220.	66.67	Central
,,	136	250.	80.	Central
1250×250	133	250.	80.	Central
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THE WEEKLY COMMENTARY.

A note below which is based on practical flying experience with a "slotted wing" Handley Page machine will be found to be of both technical and practical interest, particularly as the period must be approaching when slotted wing machines will become fairly common.

A description of the results of the Pulitzer Trophy and Curtiss Marine Trophy races recently held at Detroit, Michigan, U.S.A., gives interesting details concerning the performances of the new American aeroplanes and engines which have caused so much sensation by their speed.

FLYING A "SLOTTED WING" MACHINE.

When flying a "slotted wing" machine a slight deviation from the usual method occurs. If these relatively small differences are neglected the advantages of the slot are not fully maintained, and misleading results are recorded.

By adhering to the correct method the "slotted wing" shows distinct advantages over the standard type, both in "getting off" and "landing" on small aerodromes, lakes, and battleship decks.

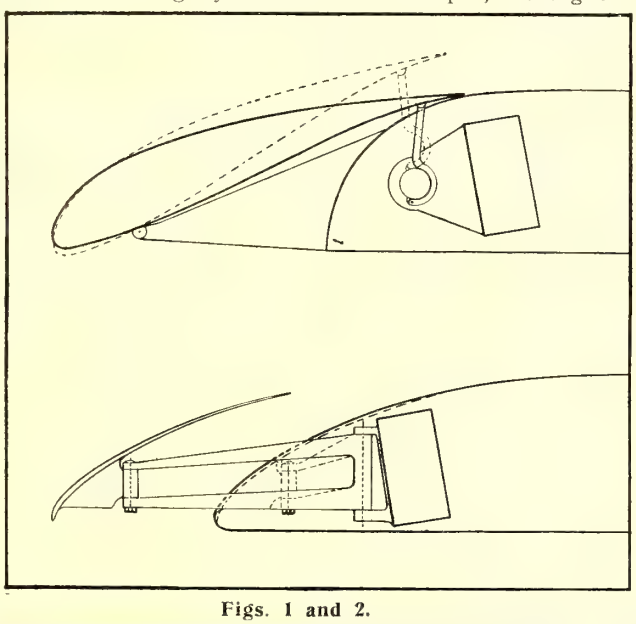
Two types of slots have been developed, one in which the forward auxiliary aerofoil is rotated without increasing the projected area of the aerofoil (Fig. 1), and the other, in which the auxiliary aerofoil is moved forward (Fig. 2). Both give excellent results.

The first of these two types has been fitted to a Napier "Lion" Slotted Torpedo Carrier (with slotted ailerons). The wing incidence is 7 deg., and the undercarriage is slightly higher to accommodate the higher angle at which the plane attains its maximum lift.

When sitting in the machine on the ground these two differences feel rather strange after the standard type machine, and it is as well to note the position, as at the time of flattening out the tendency is to under-estimate the angle through which the machine is to be moved, and consequently a three-point landing is not made.

Disregarding the number of controls and "gadgets" for its military duties, it will be seen that only one extra control is necessary to operate the slots. This is in the form of a handle that rotates, and is connected to a torque tube, which by means of links operates the auxiliary aerofoil.

Prior to "taking off" the slots are opened to their fullest extent and the tail set neutral. This tail setting is slightly different from the standard type machine, where for this condition full positive tail setting would be used. The difference can be accounted for by the fact that the "centre of pressure" moves slightly back with slots open, making the machine nose heavy. Taking the machine into the air is a matter of feel. It will be found, however, that the best climbing speed occurs at a much steeper angle than expected, owing to the maximum L/D of the machine, with slots open occurring at a larger angle of incidence. This is very advantageous, as a given height can be reached in a much shorter horizontal distance than with the standard machine. It enables the machine to be got out of restricted areas with ease.



Figs. 1 and 2.

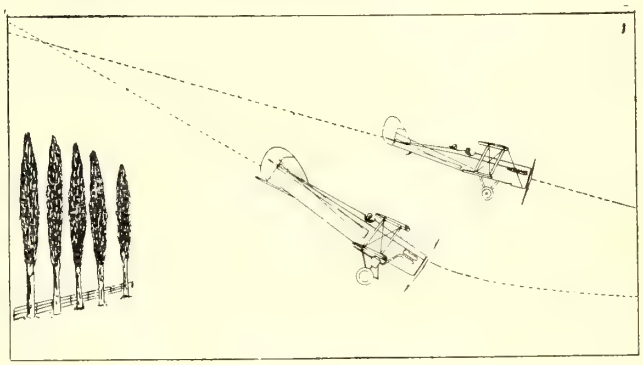


Fig. 3.

To obtain top speed the slots are closed. This operation moves the "centre of pressure" forward, giving the machine a slight tail heaviness. Setting the tail to full positive tail setting will rectify this.

For landing it is as well to set the tail neutral, open the slots, and finally adjust the tail to full negative setting.

Comparing the "slotted wing" machine to one of the standard type when gliding the tendency is to place the fuselage of the former in relatively the same position as that of the latter, and totally neglect the increased wing setting, hence the machine sinks.

If, however, the planes are placed in relatively the same position, the machine will then have a forward velocity approximately the same as the standard machine, the fuselage being at a much steeper angle. This at first appears to be a steep glide. It is, however, the natural gliding angle of the machine, and, coupled with the slow speed that is derived from the slots and maximum lateral control from the slotted ailerons, enables landings to be made in restricted areas with far more confidence (Fig. 3).

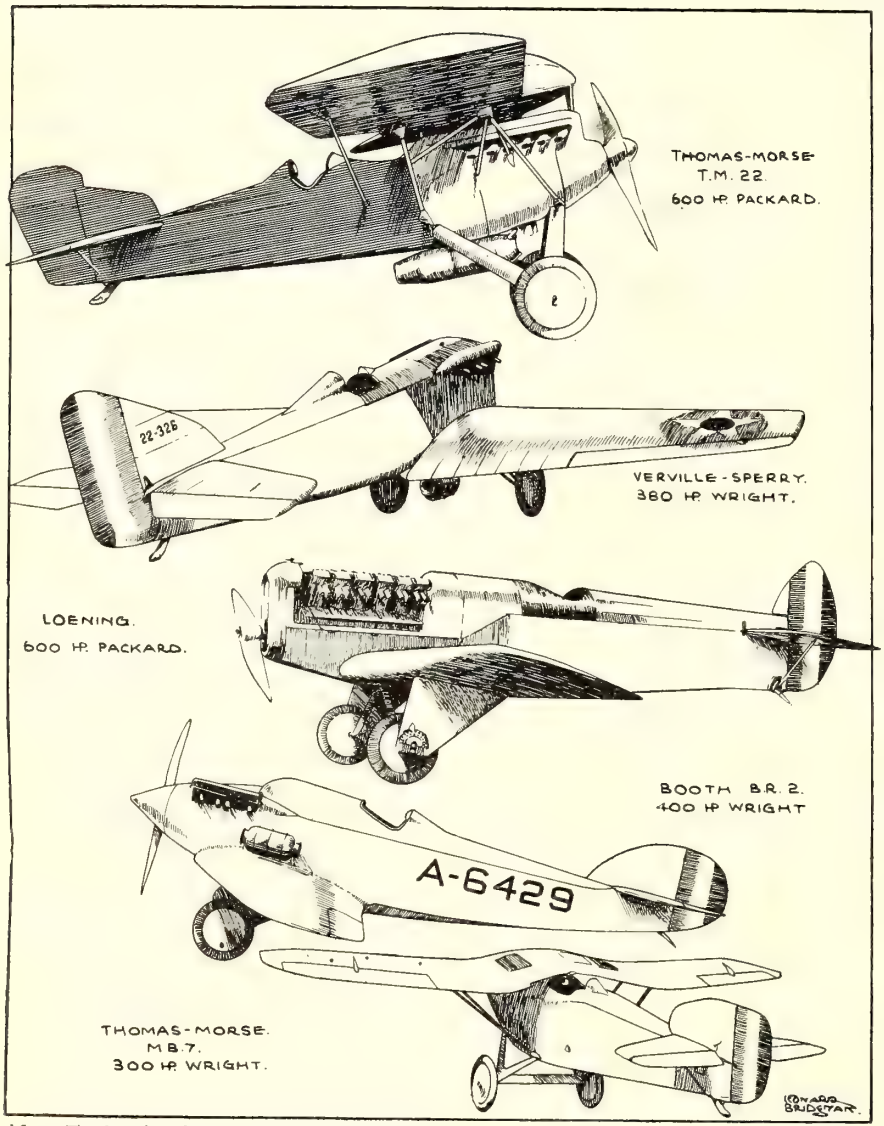
In flattening out the usual procedure is adopted, bearing in mind, as mentioned earlier, that the machine must be moved through a much bigger angle to make a three-point landing; otherwise minimum slow speed is not obtained, and the advantage of the slot is lost.

To conclude, the dangers of stalling are eliminated with the "slotted wing," the elevator control can be pulled back to its maximum, and the machine merely sinks. If this manœuvre were carried on the standard type it would stall and execute a manœuvre over which the pilot has no control.

The above describes the machine and the method of operation of the slot, and applies to the rotatable form of auxiliary aerofoil. With the other type referred to, in which the aerofoil is moved forward, the centre of pressure movement is diminished, and the necessary angular range of the tail plane can, therefore, be reduced.

THE PULITZER TROPHY RACE.

On October 14th the 3rd Annual Pulitzer Trophy Race took place at Detroit over a triangular course, Selfridge Field—Gaukler Point—a kite balloon anchored to a barge and controlled by U.S.S. "*Dubuque*"—Selfridge Field, a circuit forming an equilateral triangle of roughly 10 miles for each side. Each circuit measured 50 kilometres and the course had to be covered five times, giving a total distance of 250 kilometres or 155.34 miles.



25 entries were received for the race but one, the Dare variable camber monoplane, was ruled out owing to its entrant having failed to furnish full particulars as laid down in the F.A.I. rules.

The race was open to all machines having a speed of over 140 m.p.h. and a minimum speed not exceeding 75 m.p.h., the minimum speed being provided to eliminate freak designs and at the same time make the competing machines directly applicable to the needs of service aviation.

The following particulars of the race and of the machines are taken from that excellent American paper "*Aviation*," of New York, which is so ably edited by Mr. Lester D. Gardner and M. Ladislas D'Orcy.

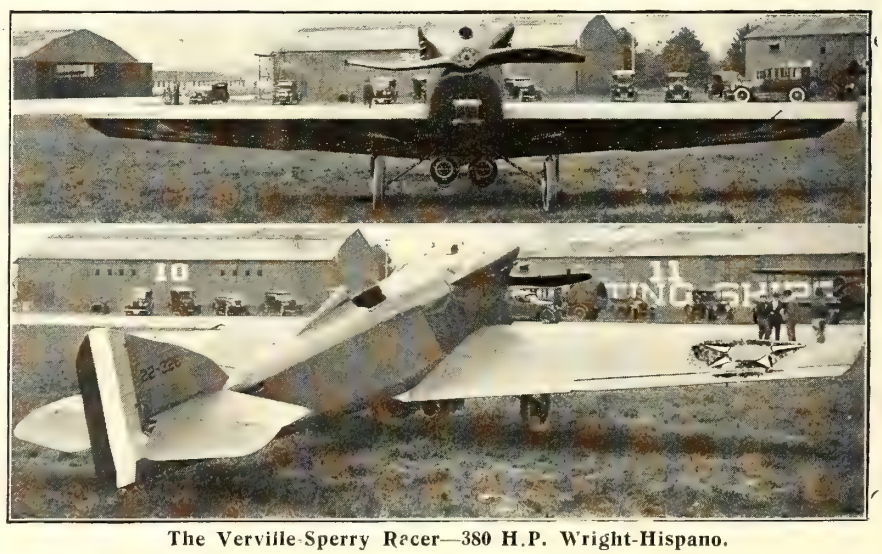
The race was divided into heats of not more than five machines in each, and at 13,00 hours the first heat consisting of Capt. Mulcahy, U.S.N., Thomas Morse, M.B.7 (400 h.p. Wright), Lieut. Callaway, U.S.N., Bee-Line Racer (400 h.p. Wright), Lieuts. Barksdale and Johnson, A.S. Verville-Sperry Racers (350 h.p. Wright), started. The Bee-Line Racer had radiator trouble in the second lap and the Thomas Morse had lubrication trouble. The two Verville-Sperry racers completed the course, Lieut. Barksdale making an average speed of 181 m.p.h. and Lieut. Johnson 179 m.p.h. This heat caused a thrill in that three of the four machines, the two Sperrys and the Bee-Line, were fitted with retractable undercarriages, and for the first two laps spectators were treated for the first time in America of a race between three machines shorn of their landing-wheels.

The second heat comprised two Navy Curtiss Racers (375 Curtiss C.D.12) flown by Lieuts. Brow and Williams, U.S.N., two Army Curtiss Racers (375 h.p. Curtiss D.12) flown by Lieuts. Maughan and Maitland, A.S., and the Navy-Wright "Mystery" sesquiplan (650 h.p. Wright) flown by Lieut Sanderson, U.S.N. The Navy "Mystery" made one lap at 187 m.p.h. but was forced to retire in the fourth lap with engine trouble. Lieut. Maughan completed the course at 206 m.p.h., and proved to be the ultimate winner Lieut. Maitland made 198.9 m.p.h., Lieut. Brow 193.2 m.p.h., and Lieut. Williams 188 m.p.h.

The last heat consisted of Capt. Moseley, Air Service, Verville-V.C.P.1 (600 h.p. Packard), Lieuts. Whitehead and Schulze, A.S., Loening Racers (600 h.p. Packard), and Capt. Hunter, A.S., and Lieut. Bissell, A.S., Thomas Morse 22s. (600 h.p. Packard), and Capt. Streett, A.S., Verville-Sperry (350 h.p. Wright). The two Loening monoplanes made 178 and 170.2 m.p.h., the two Thomas-Morse 155.5 and 149.3 m.p.h. and the Verville V.C.P.1 179 m.p.h. The third Verville-Sperry flown by Capt. Streett was forced to land with engine trouble just outside Selfridge Field, which it did without much trouble.

When the last machine had landed Lieut. Maughan was announced as being the winner amid scenes of enthusiasm.

The following is the order of finishing together with the average speed made over the 250 kilometre course :—(1) Lieut. Maughan (Curtiss-Army) 206 m.p.h. (2) Lieut. Maitland (Curtiss-Army) 198.9 m.p.h. (3) Lieut. Brow (Curtiss-Navy) 193.2 m.p.h. (4) Lieut. Williams (Curtiss-Navy) 188 m.p.h. (5) Lieut. Barksdale (Verville-Sperry) 181-8 m.p.h. (6) Capt. Moseley (Verville-V.C.P.1) 179 mp.h. (7) Lieut. Johnson (Verville-Sperry) 178 m.p.h. (8) Lieut. Whitehead (Loening) 170.2 m.p.h. (9) Lieut. Schulze (Loening) 160.9 m.p.h. (10) Lieut. Bissell (Thomas Morse 22) 155.5 m.p.h. (11) Capt.



The Verville-Sperry Racer—380 H.P. Wright-Hispano.

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RANGE: 340 miles. SPAN: 50 ft. HEIGHT: 15 ft. 1 in. LENGTH: 35 ft.

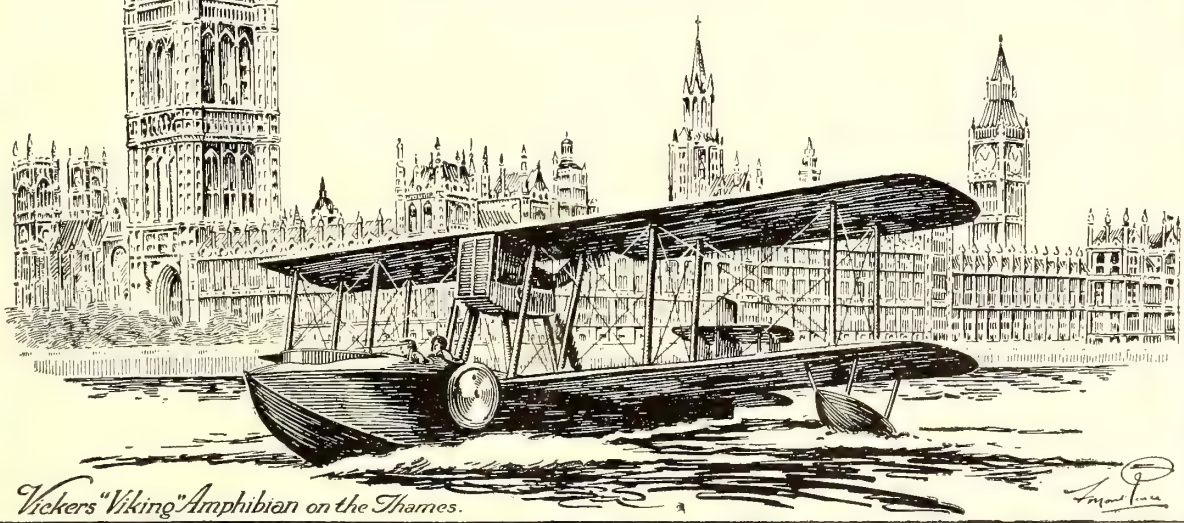
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The Vickers "Viking" was the winner of the FIRST prize of £10,000 for the Amphibian Class of Aircraft entered for the BRITISH AIR MINISTRY COMPETITION, September, 1920.

The Vickers "Viking" was classified FIRST in the following competitions at the INTERNATIONAL SEAPLANE COMPETITIONS at ANTWERP, July, 1920.
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Vickers "Viking" Amphibian on the Thames.

Hunter (Thomas Morse 22) 149.3 m.p.h. The speeds shown in the Pulitzer Race are extraordinarily high and reflect great credit on the U.S. Army and Navy for having given the various firms concerned the opportunity for showing their ability to turn out really fast but at the same time possible military machines. But for official encouragement it is extremely doubtful whether any of the firms would have gone to the extent of designing special machines for the race.

Had the authorities merely entered standard machines from stock, little enthusiasm would have been raised, but by ordering a batch of machines such as they did it not only enabled the firms to develop new machines but at the same time enabled both the firms and the Air Services to obtain a siderable amount of useful information, all of which is to the ultimate benefit of Service aviation.

Money spent in this way can hardly be called extravagance.

As an instance of the way in which the U.S. Air Services made use of the Pulitzer Race, the Navy-Wright "Mystery" machine gives a good example. A new engine, the 600 h.p. Wright T.2, which has been developed for a new type torpedo, bombing and scouting machine, has just been completed, and the Navy conceived the idea of building a species of "flying laboratory" round this engine and giving it a practical test in the Pulitzer Trophy Race.

To this end the Wright Aeronautical Corporation, the brilders of the engine, co-operated with the Chance-Vought Corporation under the direction of the designers of the Bureau for Aeronautics and produced the machine in question. It was completed almost against time, three shifts of artisans working 24 hours a day to get it finished in time to compete. The fact that it failed to complete the course matters little as the engine is only the second of its type built, and from the experience gained from it in this machine it is all the more likely to get over its teething troubles whilst it is comparatively young.

Is it too much to hope that the Air Ministry will follow in the steps of the U.S. Army and Navy?

Up to now the World's speed record has been held by but one or two European firms whose judicious cleaning up of detail and boosting of engines has succeeded in adding the necessary 4 km.p.h. to the previous speed of the same machine to retain the coveted record. And so it is with European speed races. The winner of the 1922 Coupe Deutsch is the same machine in which M. Sadi Lecointe obtained speed records in 1920.

With Brig.-Gen. Mitchell attaining a speed of 224 m.p.h. over the measured kilometre, electrically timed in both directions, these conditions are changed, and this change is a striking demonstration of what official encouragement has accomplished in such a short period.—L. B.

THE CURTISS MARINE TROPHY RACE.

The Detroit Air Meeting, held from October 7th-14th, was noteworthy for the flying of both America's premier speed events, the Curtiss Marine Trophy Race for seaplanes and the Pulitzer Trophy Race for land machines. Again, both these events were outstanding in that the entry lists for both were comprised almost entirely of Service machines, and the actual races were contested entirely by Army and Navy machines.

Owing to unfavourable weather on October 7th the Curtiss Marine Trophy race was postponed until Sunday, October 8th, and, although the continuous rain of the previous day had ceased, the weather was bad both for contestants and spectators, with a sky full of low cloud and a gusty wind whipping up the surface of the Detroit River.

The course of the race was a closed circuit of 20 miles, which had to be covered eight times. The first four laps were to be covered entirely in the air, and on completing the fifth, sixth, and seventh laps competitors had to alight and taxi on the water for 1,200 ft. on a course laid out with a hairpin turn around the starting barge, take off again and finish the last (eighth) lap in the air. The inclusion of the navigabilty tests in the race itself is novel, and led competing pilots to make some spectacular high-speed taxi-ing round the judge's barge.

Of the 10 entries eight machines lined up and started at one-minute intervals in the following order: Lieut. R. Irvine, Curtiss 18T. (375 h.p. Curtiss D.12); Lieut. D. Rittenhouse, Navy T.R.3 (220 h.p. Wright E.3); Lieut. S. W. Callaway, Navy T.S.1 (220 h.p. Lawrance); Lieut. A. W. Gorton, Navy T.R.1 (220 h.p. Lawrance); Lieut. W. K. Patterson, Gallaudet D.4 (420 h.p. Liberty); Lieut. L. H. Sanderson, Curtiss 18T. (375 h.p. Curtiss D.12); Lieut. H. A. Elliott, Vought V.E.7H. (220 h.p. Wright); and Lieut. H. J. Brow, Navy T.S.2 (240 h.p. Aeromarine U.S.D.).

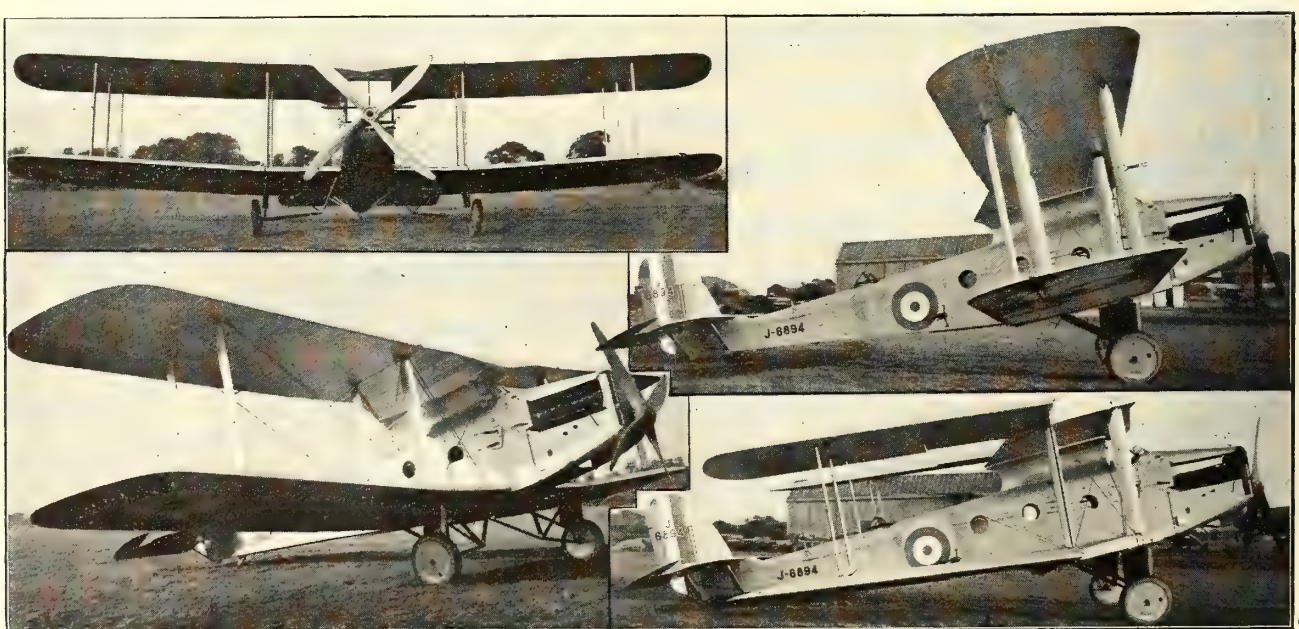
At the end of the fourth lap, Lieut. Rittenhouse and Lieut. Brow had dropped out, the former owing to his airscrew working loose, and the latter through the loss of his cooling water, and thereafter came the real thrills of the race.

Lieut. Irvine, Lieut. Gorton, and Lieut. Sanderson held the first three places in that order, and here came the first of the landings round the starting barge. Lieut. Irving landed at high speed in a cross wind, bounced several times, but managed to turn after looking as though he would ram the barge and got off again. Lieut. Gorton accomplished his turns at less speed, while Lieut. Sanderson repeated Lieut. Irvine's performance.

In the fifth lap Lieut. Patterson after landing had difficulties with the cross wind, and eventually came to a stop with a broken airscrew right in the passage between the two barges which marked the taxi-ing channel. In the meantime Lieuts. Gorton and Sanderson were coming down for their landing. After much excitement the Gallaudet was towed out of danger by a police boat, but owing to being baulked both Lieuts. Gorton and Sanderson made an additional turn round the barge.

At the end of the sixth lap Lieuts. Irvine and Callaway did not appear, the former having crashed, owing to the machine having become difficult to handle because of a wing-tip float being twisted out of place, which upset the controls. The gusty wind round the six giant smoke-stacks of a power station which marked a turning point forced him to descend. He landed on a stack of coal, but was quite unhurt, although the machine was "reduced to produce."

Lieut. Callaway had engine trouble, and returned at slow speed to the Naval Base.



THE D.H.27.—The machine illustrated above and also in two photographs on the next page is a heavy bomber designed and built by the De Havilland Aircraft Co. for the Air Ministry. As is usual one is forbidden to supply any technical data concerning this machine.

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This left three machines in the race, Lieut. Sanderson, who had started sixth, leading. He had worked his way up, lap by lap, by excellent flying, and he seemed a certain winner, but he had the misfortune to run out of petrol in sight of the finishing line. Lieut. Gorton proved to be the winner, with Lieut. Elliott the only other competitor left as second and last.

The Curtiss T.R.1, which won, averaged 117.8 m.p.h. on the first three laps, with an average of 112.65 on the complete race, and the Vought V.E.7H., a standard U.S. Navy "shipboard seaplane," averaged 112 m.p.h. for the first three laps and 109 m.p.h. for the eight.

The Curtiss 18T. of Lieut. Sanderson was the fastest machine in the race, and for the first three laps put up a speed of 124.6 m.p.h., with a fastest lap, the fourth, of 125.5 m.p.h.

The winner, the Curtiss T.R.1, was built to the designs of Commander J. C. Hunsaker, U.S.N., Chief of the Design Dept. of the Bureau of Naval Aeronautics, and is similar to the types T.S.1 and 2 and T.R.3, which are variations of the Navy "Shipboard Combat" design, type T.S.

The types T.R. had wings of a faster section, but otherwise they all belong to the same general type, except for the engines.

The T.S. seaplane was designed to give the smallest and most compact machine with maximum facilities for take down and erection on board ship. All wing bracing has been eliminated, the single struts being of N form, with rigid tubes taking the place of flying wires. The main petrol tank is carried in the lower centre section, and is easily dropped in case of emergency. The float base is interchangeable with ordinary wheel landing gear.

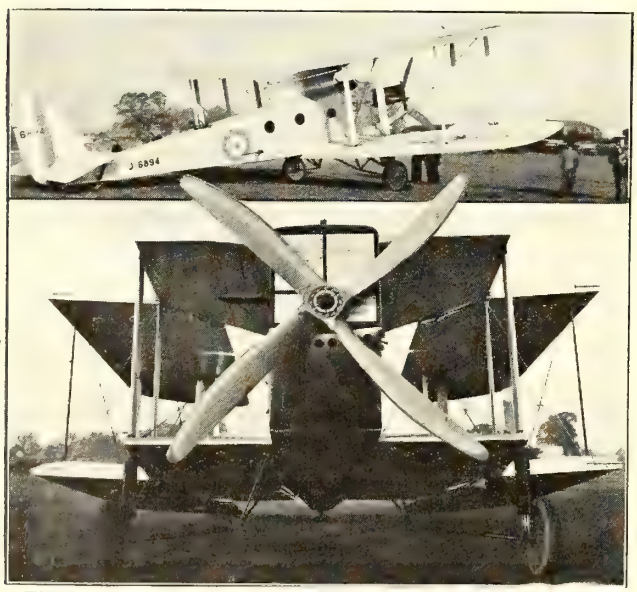
The overall dimensions, which are similar in all types are as follows :—Span, 25ft.; length, 24 ft. 7 ins.; height, 9 ft. 6¾ ins.; chord, 4 ft. 9 ins.; gap, 5ft. 6 ins.; dihedral (bottom plane only), 3 deg.; area, 225 sq. ft.; wing section U.S.A.27. For the different types the weights, speed, and engines are as follows :—T.S.1 : Weight, 2,025 lbs.; speed, 125 m.p.h.; engine, Lawrance J.1, 220 h.p. T.S.2 : Weight, 2,085 lbs.; speed, 130 m.p.h.; engine, Aeromarine U.8D., 240 h.p. T.R.1 : Weight, 1,790 lbs.; speed, 130 m.p.h.; engine, Lawrance J.1, 220 h.p. T.R.3 : Weight, 1,980 lbs.; speed, 130 m.p.h.; engine, Wright, E3, 220 h.p.

METAL AIRSCREWS.

With reference to the recent paragraph concerning the triumph of the Leitner-Watts metal airscrew in making the duration record set up by Messrs. Bossoutrot and Drouhin Doctor Henry C. Watts, D.Sc., A.M.I.C.E., A.I.N.A., F.R.Ae.S., writes as follows :—

"I notice in your issue of November 8th that in commenting on the very fine performance of the metal propellers used by MM. Bossoutrot and Drouhin on their European duration record flight you make some disparaging remarks concerning the attitude of the Air Ministry to metal propellers.

"In common justice to the Air Ministry experts I must say that I have found no 'strong prejudice' against metal propellers, and their attitude has been one rather of enthusiasm. As the consulting engineer to the Metal Airscrew Co. I think probably my own criticisms and requirements have been far more drastic and rigid than any laid down by the Directorate of Research. It is true that the Air Ministry does not always act with that promptitude which all of us would desire, but I think it must be admitted that that is the fault of the system rather than of individual officials."



THE LATEST BOMBER, the new D.H.27 (Rolls-Royce "Condor" 650 h.p.)

One is glad to have the evidence of so eminent a designer as Doctor Watts to the fact that the people now responsible for airscrews at the Air Ministry are enthusiastic about metal airscrews. There was a time not so very long ago when views were very different. If they had been otherwise the excellent productions of Mr. Leitner and Dr. Watts would undoubtedly have been in common use to-day, and possibly even during the War we should have had not merely metal airscrews but metal aircraft.

Taking it all round there is nothing much wrong with the system at the Air Ministry, which after all is the system of all Government departments and is the result of centuries of development the aim of which has been to produce a fool-proof system which even though slow in operation cannot be upset by either wilful or ignorant foolishness. One can only hope that the enlightened officials now in charge of technical affairs at the Air Ministry may be able to do something to make up for the delays caused by their predecessors.—C. G. G.

NEW AIRSHIPS FOR THE U.S.A.

The U.S. War Department has placed orders with the Goodyear Tyre and Rubber Co. of Akron for a semi-rigid and five non-rigid airships. The semi-rigid, which is the first to be built in the U.S.A., will be for use as an aircraft-carrier and will be to the designs of Sig. Umberto Nobile, of the Italian Airship Factory, Rome. It will be 300 ft. long of 750,000 cubic feet capacity and filled with helium. At 44½ m.p.h. its cruising radius will be 4,140 miles.

HOW TO BOOST.

The *New York American,* which calls itself "The Paper for People Who Think," dated Sunday, August 27th, 1922, publishes a full page and a bit of eulogy, epithalamium, and ecstacy under the heading, "World's Greatest Aero-Motor for Our Navy," "Three-Hundred Hour Test at High Speed Without Making a Stop Amazes Officials." These two phrases each go right across a page. Then in very small letters one reads, "Power of 280 horses in a 500-pound engine." Later, when one comes to read the flaming rhetoric of the American reporter, one discovers that the engine "Swept to the summit of its 227 horse-power, and held its position there."

All this fuss is apparently about quite a good little new aero engine turned out by the Aeromarine Company, of New York, which, on the face of it, appears to be a very nice job, though, of course, in this country, where we take aviation seriously, there does not seem to be much use for such a small engine except for purely private aeroplanes, which are not likely to become popular for some years, by which time, of course, we ought to have our engines down to very much less than 500 pounds weight for 227 horse-power, considering that already we have the Bristol "Jupiter" of 400 horse-power and the Siddeley "Jaguar" of 350 horse-power down to something in the region of 1½ lbs. per horse-power.

Still, that page and a bit, with its glowing headlines and its amazing illustrations, makes one wonder what our British papers might do if they let themselves loose in proportion on the 1,000 h.p. Napier "Cub" or the 700 h.p. Rolls-Royce "Condor." Ordinary Rule of Three Arithmetic seems to indicate that the *Times* ought to devote a whole issue to either of them. Meantime, of course, anybody can go down to the Aircraft Disposal Company and buy as many engines as they want between 250 h.p. and 300 h.p. for something very like their price as scrap metal.

AN OPPORTUNITY.

A firm of aircraft constructors is at present in need of the services of an assistant designer and of two competent draughtsmen.

The firm in question is engaged in the production of machines of an advanced type possessing a number of novel features, and this opening should have strong attractions for competent men with progressive instincts.

Inquiries should be addressed to The Editor, The Aeroplane, 175, Piccadilly, W.1.

A MATTER OF EXPERIENCE.

It is announced that Mr. G. Tilghman Richards,, F.R.Ae.S., M.I.M.E., M.I.A.E., M.I.Ae.E., who was chief designer to the Beardmore firm from 1915 to 1921 and has since been expert organiser to Martinsyde, Ltd., is leaving that firm and is open to accept a position in the Aircraft Industry. Mr. Richards, after having been connected with automobiles in their early days and having been concerned with the successful Rolls-Royce tourist trophy cars of 1904, has had a long and extensive experience of aviation dating back to the pre-flying days when he was experimenting with the late Mr. Cedric Lee, with a glider which ultimately developed into the famous "Secret Circle-'Plane." Since those early days Mr. Richards has designed a number of aeroplanes and has made a special study of metal construction and there is no doubt that his experience might be used to considerable advantage.

F-ADAY F-A
F-ADC^
F-A
F-A
F-A
F-A
F-A
F-AI
F-FA
F-FHI
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F-YHMI
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C.M.A. Air Lines is the British title of the Compagnie des Messageries Aériennes, whose head office is at 2, Rue Galilee, Paris. The Company was originally founded early in 1919, by M. Louis Breguet, for the transport of goods from Paris to Lille, the ground communications having been so much disturbed by the European War. This line, which was the first commercial aviation service in the world, was soon extended to Brussels and the line from Paris to Brussels has been maintained by the Company ever since.

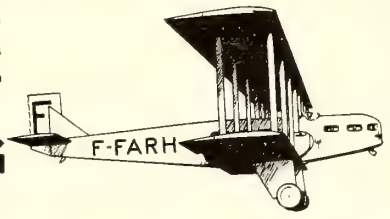
In September, 1919, a service between London and Paris was inaugurated in conjunction with Handley Page Transport, Ltd. This was originally operated three times a week each way, but later, when the two Companies separated, a daily service was commenced, which has now been extended to a thrice daily service. Compagnie Générale By an arrangement with the Compagnie Générale Transatlantique a service is run to connect with the arrival and departure of this Company's sailings between Le Havre and New York. This is the first occasion on which a large shipping company has recognised the necessity of using commercial aviation in its transport policy.

The Company's service has now reduced the time of transit between London and Paris to two and a-half hours; between London and Le Touquet to one and a-quarter hours; between Paris and Le Touquet to one and a-quarter hours; between Paris and Brussels to two hours and between Brussels and Amsterdam to two hours. A line has been inaugurated to run direct from London to Marseilles, calling at Paris and Lyons and connecting with the Steamship Lines to India and the East. This brings Marseilles within six and a-half hours. Passenger Service is maintained by twin and Lyons within eight hours' reach of London.

The C.M.A. Goliath Biplanes, fitted with two 300-h.p. tractor Farman Engines and with a seating canacity for 12 passengers, pilot and mechanic. This machine has a wing-span of 92 ft., a length of 49 ft. 6 in. and a height of 16 ft. Its cruising speed is 93 m.p.h. The freight, mail and newspaper services utilise the smaller type of single-engined Spad and Breguet.

The Compagnie des Messageries Aériennes is an association of aircraft constructors for the study and application of Aerial Transport, and among its Board of Directors appear the well-known names of Messrs. Blériot, Breguet, Caudron, Farman, Morane, Luquet de St. Germain and Renault.—*Extract from R.A.F. Year Book.*

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AIR LINE ARRIVALS AND DEPARTURES.

ANALYSIS OF FIGURES.

For week ending Nov. 19th.

LONDON—PARIS :

Handley Page Transport, Ltd., machines 2, passengers 14*. C.M.A. Air Line, machines 3†, passengers 1. Cie. Grands Express Aeriens, machines 1, passengers 1. Total, machines 6, passengers 16.

LONDON—COLOGNE :

Instone Air Line, Ltd., machines 2, passengers 6.

MANCHESTER—LONDON—AMSTERDAM :

Daimler Airway, machines 11, passengers, Manchester-London, 23; London-Amsterdam 7.

LONDON—ROTTERDAM :

K.L.M., machines 3, passengers 3.

SPECIAL MACHINES :

Total number of trips by British machines: 15, carrying 50 passengers.

Total number of trips by foreign machines: 7, carrying 5 passengers.

Trips per day.—Monday, 2; Tuesday, 0; Wednesday, 1; Thursday, 1; Friday, 6; Saturday, 13; Sunday, 0.

STATISTICS.

Machines, 22; Passengers, 55; Crews, 48; Total Personnel, 103.

Corresponding week last year :—

Machines, 63; Passengers, 121; Crews, 92; Total Personnel, 213.

Corresponding week, 1920 :—

Machines, 51; Passengers, 86; Crews, 64; Total Personnel, 150.

* These machines also carry loads of freight.

† Some machines are freighters only.

NOTES OF THE WEEK.

NOVEMBER WEATHER.

As usual in November the weather during the past week has probably been the worst during a sustained period since civil aviation began. There was a thick fog continuously from Sunday until Friday morning, though this lifted for a short time on Wednesday afternoon.

Mr. Barnard and Mr. Robinson were accordingly marooned in Cologne, Mr. Dismore in Paris, Mr. Robertson in Manchester, and Mr. Hinchliffe in Amsterdam. Two Fokkers piloted by Mr. Smirnoff and Mr. Geysendorffer came over on Sunday, but could not make the aerodrome, so they landed on Epsom Racecourse, and were not able to get to Croydon until Friday.

On the same Sunday Mr. C. D. Barnard on a De Havilland air taxi, which was bringing some press photographs from France, was forced to land at Kenley owing to the fog. He came on to Croydon on Friday, and later left for Stag Lane.

The first machine to complete a journey during the week was a Daimler D.H.34, which Mr. Robertson brought from Manchester to Stag Lane on Wednesday. He just managed to get through in comparatively clear weather.

THAT NEW TERMINAL.

The experiments to prove the utter unsuitability of Wormwood Scrubbs as the terminal aerodrome were postponed from Friday until Monday of this week. On Saturday it was decided to postpone the experiment once again.

One would have thought that South-East London would be a more suitable spot for an aerodrome, and one believes that there are suitable sites between Catford and Beckenham, or somewhere in the neighbourhood of Southend-not-on-sea-or-river. If one's memory serves there is a spot between New Beckenham Station and the River Poole (the latter being a river by courtesy only), which would make an ideal aerodrome, and would also be very accessible from the West End either by road, train, or 'bus. Or there is Mitcham Common, with Mitcham Junction as "railhead."

Incidentally it was at Beckenham that the first Paris-London flight which was ever made was completed, when the late Mr. J. B. Moissant on a Blériot monoplane in September, 1910, attempted to land in the Crystal Palace. After flying over that place he found the quality of the landing ground about equal to the quality of the recently discovered sporting spirit of the Crystal Palace Soccer team which plays at Selhurst, and so he landed just behind New Beckenham Station.

"IF SUMMER DON'T."

The Instone Air Line have now decided to utilise Tirlemont as an intermediate aerodrome while Brussels is out of action. It is impossible for a D.H.34 to complete the trip to Cologne non-stop, and it is difficult for a D.H.18 in anything of a head wind, and so petrol can now be obtained at Tirlemont.

Mr. George Powell was testing a D.H.18 on Friday afternoon and on Saturday morning, making some very pretty landings indeed. Later on he was up in a D.H.34. At one time he was going along just above the old service aerodrome, and in front of him was an Avro. The latter suddenly did a complete and very sharp turn without any warning, and Mr. Powell had to yank the "34" round sharply to avoid a collision.

AN INSTRUCTIONAL INTERLUDE.

On Friday an R.A.F. Bristol was flying over the aerodrome when the engine suddenly cut out on about half of its cylinders. The pilot tried to make Kenley, but the engine then petred out altogether. The pilot, who turned out to be a pupil, made an astonishingly good landing, just getting into the aerodrome. Later on a D.H.9a came over from Kenley to render assistance. and later in the afternoon both machines returned to their station.

On Friday afternoon Mr. Perry was up on a "Snipe" and Capt. Stocken was also flying round on a similar machine. Later on Capt. Stocken took an Avro out and on Saturday morning he was doing sharp turns, etc., on another Avro.

"THERE'S A RUMOUR THAT THE PUMA—"

Mr. Plesman, the manager of the K.L.M., was at the aerodrome during the week having a look round. Incidentally, with regard to the Siddeley "Puma" engines used on the K.L.M. service one is told that in nearly two years' continuous running there have only been two forced landings owing to engine trouble, and these have been so trivial that the pilot has been able to reach an aerodrome on each occasion. If only the Siddeley people can make a success of the gearing up of four "Pumas" with which they have been experimenting for some time one feels sure that the good old "Puma" would be taken up and used in "batteries" very extensively.

HIS MASTER'S VOICE.

The wireless people have now fitted up a loud-speaking horn in their hut and one can sit in the room and listen to the voice of people in machines along the routes, and of course it is always an unfailing joy to hear the dulcet tones which sound like those of a gunner captain who was educated at Balliol which are the property of the gentleman at Marconi House "2 L.O." who spends his time broadcasting himself.

Mr. George Robertson, the Daimler pilot, became engaged to be married at the beginning of last week. It seems that the Air Ministry should work on a basis arising from similar facts to solve the problem of flying through fog. Anyway one takes this opportunity of wishing him and the future Mrs. Robertson all the best.

Mr. Rogers tells one that his 1922 type arrived last week. Mr. Rogers has featured in the same personal column regularly each winter since 1920. Congratulations on the happy event.

ELECTION DAY.

On Wednesday, the various members of the aerodrome motored or "just plain went" to their various polling stations, where, in most cases, they helped to swell the huge Conservative majorities with which the aerodrome was happily surrounded.

As the weather was too bad for flying on that day various pilots and other members of the Instone Line went to Whitechapel to help Capt. Alfred Instone, who was standing as the Conservative candidate. Considering that this is Capt. Instone's first bid for Parliamentary honours and considering the fact that no Conservative has ever before attempted to fight such a Radically-Labour inclined constituency he really put up a very good fight, as all the three candidates were within a few hundred votes of one another. One wishes Capt. Instone and the Conservative cause better luck next time.—G. D.

Flying Leeds to Trouble.

Mr. D. A. Shepperson and the De Havilland Aircraft Company were summoned at Leeds on November 14th for an offence under the Air Navigation Act, 1920. Mr. Shepperson was flying over Leeds, taking photographs, when his engine cut out, and he had to descend on Woodhouse Moor. In order to avoid some people he swerved into some trees after landing. He was fined £2 and the De Havilland Aircraft Company was fined £25 and 10 guineas costs.

No doubt both Mr. Shepperson and the De Havilland Aircraft Company are very naughty, but business is business and photographs are (sometimes) photographs. [Not when the Editor takes 'em.—G. D.]

A Gliding School.

Mr. F. Warren Merriam has decided to start a gliding school at Whiteley Bank, Isle of Wight. There is a good hill there the best slope of which faces the south-west. The fee for a course which can last as long as the pupil desires will be £25, which will include instruction in the building of a glider and also the theory of gliding.

Mr. Merriam will use monoplanes, some of which will be fitted with dual control. There will be housing quarters on the premises. The school will be known as the Whiteley Bank School of Gliding. The hilly nature of the island should afford excellent opportunity of sustained flight and Mr. Merriam's skill as a pilot and instructor are both well known.

Brighter London.

Over in America Brigadier-General William Mitchell, Assistant-Chief of the U.S. Army Air Service, has just set up a World's speed record of 224.05 miles per hour, flying the Army Curtiss racer with 460 h.p. Curtiss engine.

General Mitchell is the most senior officer in America who is a pilot. Many people in England are very disappointed that we no longer possess the World's fastest aeroplane, but there may be something in the theory that the speed of a machine increases in proportion to the rank of the pilot.

Therefore one thinks that it might be a great notion to persuade Major-General Sir Sefton Brancker to try out his luck on the "Bamel." He could certainly count on having as spectators all past and present members of the Flying Services who remember General Brancker's skill as a pilot during the war. Boxes in the form of dug-outs and front seats in trenches would command high prices, as would Kinema rights and "close-up" gramophone records of the performance. Thus we might be able to afford to build a new record-breaker.

AN ELECTION ERROR.

The following letter has been received :—

SIR,—With reference to your issue of the 15th inst. I notice under the "Notes of the Week," dealing with this aerodrome, the following :—

"Sir Alfred stated that he was here by permission or by the courtesy (or words to that effect) of Instones, and it seems rather curious that a private firm should invite a Parliamentary candidate to a Government-owned aerodrome, albeit he is a Conservative."

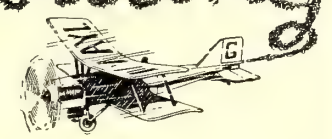
Although Sir Alfred Butt did state this in his speech I would like to make it quite clear that he was not invited to the aerodrome by this company or any member of it, and the facts of the case were as follows :—

Sir Alfred Butt, who is a friend of Mr. Theodore Instone's, thought it likely that a good many of his constituents would be employed at the aerodrome, and that consequently it would be a good thing if he took the opportunity to address them down here. In consequence he asked Mr. Theodore Instone if it would be possible to do so. Mr. Theodore Instone thereupon asked the writer to do what he could to assist Sir Alfred Butt in this matter. The writer then saw the C.A.T.O. in charge of the aerodrome and explained the position to him, and the C.A.T.O. wrote to Sir Alfred Butt informing him that he was at liberty to address any of those who cared to attend a meeting on a particular day, and Messrs. Trust Houses placed a building at his disposal.

I trust this makes the matter clear as from the report of it in your issue it would appear that Messrs. Instones had invited Sir Alfred Butt to hold a meeting on an aerodrome over which they have no control.

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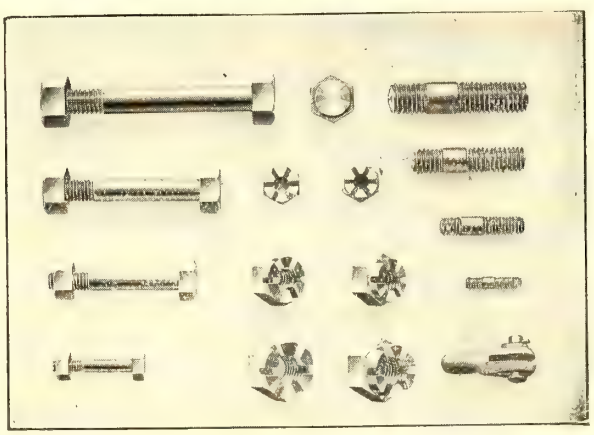
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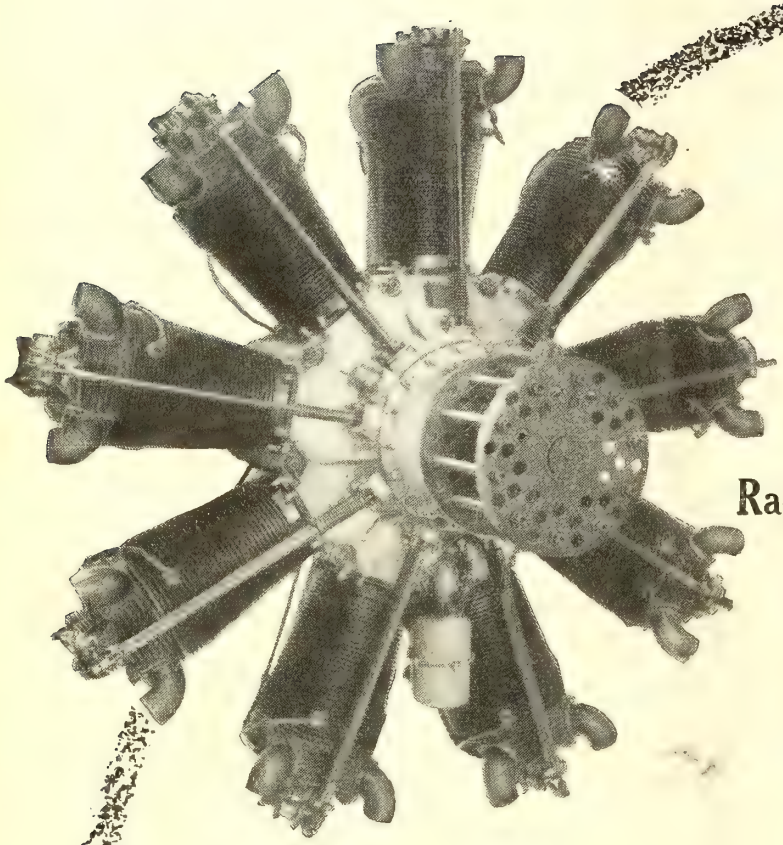
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A REMINISCENCE OF SUMMER.



AT THE R.A.F. PAGEANT:—The Machine Park at the Hendon Aerodrome photographed by an R.A.F. officer early in the day before the rain produced "Visibility Nil."

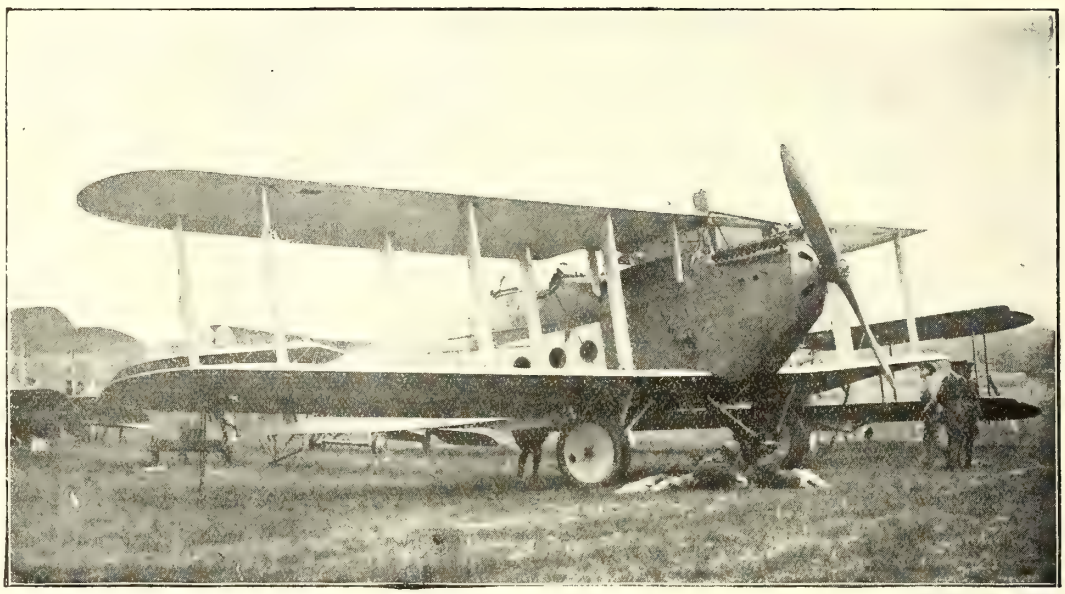
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ON A FUTURE R.A.F. SCANDAL.

As the daily news-sheets, taking them bye and large, are always so pleased at discovering a scandal in the Royal Air Force one may be conferring a benefit on them as a class by indicating a direction in which they are sure of finding a perfectly good scandal sooner or later whatever the Air Council does to prevent it. Therefore one would recommend the tame scandal-mongers of the press to keep an eye on the R.A.F. Stores problem, which seems to present about the most insoluble puzzle ever set before a body of honest and competent officials.

The Stores Problem.

The position is briefly this.—By reason of the immense number and variety of spare parts, instruments, gadgets and what-nots necessary for the running of an aeroplane and its equipment the R.A.F. has been compelled to lay down, or at any rate to attempt to lay down, a stores organisation such as has never been imagined by either of the Senior Services. For instance there are, one believes, something in the region of 4,000 separate parts in one Rolls-Royce engine. Spares for all those parts have to be kept in the stores of any squadron equipped with such engines. And all those parts have to be entered in books, not only at the squadron stores but at the aircraft park and the depot from which that squadron draws its supplies. And the same rule applies to all the details of aeroplanes, armament, instruments and everything which the squadron uses.

An infantry battalion has to deal merely with rifles, machine-guns, ammunition, accoutrements, clothing and food. Cavalry have the additional burden of horse stores. The Gunners have some few extra troubles with battery equipment. And the Sappers have to deal with matériel which is akin to the stock of a general ironmongery store.

In the Navy each ship is a self-contained unit. It draws what it is entitled to draw from the dock-yard on commissioning and steals as much more as it finds to hand. When it is about to pay-off it throws overboard all surplus stores so as to make its stock-taking correspond with its books, and if it is short of anything it enters it as having been consumed. Ask any Naval officer to tell you the story of the "shove-wood" and you will understand how simple is store-keeping in the Navy.

There is much good sense in the musical plea of the Co-optimistic Mr. Gilbert Childs,—"Don't let us scrap the British Navy!" It is so useful as a horrible example.

The C.O's. Responsibility.

But an ordinary Service Squadron in the R.A.F. has probably more separate fiddling little items on its books than has a battle-ship, and it cannot either get rid of a surplus undetected nor explain away a shortage with the facility of the Naval stores-merchant. An Air Ministry auditor comes down and audits its books every two or three months and sooner or later every minute error is detected. And, crowning injustice of all, the unfortunate Officer Commanding the unit, whether squadron, station, depot or what-not is held personally responsible for every item shown in the unit's books, from a split-pin to a complete aeroplane.

Obviously it is a physical impossibility for an officer who is taking over a new command to go over every detail in his stores and see that they correspond with the books before he signs on and takes over the immense responsibility involved, amounting as it easily may to half-a-million pounds for one squadron-leader whose pay is perhaps £700 a year. Every officer whom one has asked whether he checked his stores before taking over has replied in essence, "No jolly fear! I just signed for what my predecessor told me was there and said a prayer that whoever succeeds me may be equally trustful and confiding."

A Moral Wrong.

Now one submits with all respect to the Air Council that in the first place it is shocking bad policy to saddle a commanding officer with such responsibilities. If he is a born leader of men he has not the counter-jumper mentality which is necessary to look after complicated stores properly. And if he is a competent stores-wallah he will be no use as a commanding officer.

In the second place it is morally wrong to do so, for if he has a first-class conscience he will refuse to sign on or off without satisfying his conscience that he is signing to the truth, the whole truth, and nothing but the truth, so help him. And as no human being could possibly check those stores himself it simply means that every officer's conscience is being outraged by order of the Air Ministry whenever he signs for the stores of a new unit. Which is bad for his moral state. To put it frankly and brutally every such signature is an implied lie, and every signatory knows it.

In the third place it is absurd. For if an officer is a good officer and wins promotion and if it is discovered that some hundreds of pounds' worth of stores are missing when he comes to hand over his command then obviously if he is held responsible for stores he has failed in his trust and ought not to be promoted. Or if the stuff was missing when he signed for it on taking command then he signed a lie and ought not to be promoted. And if there is a Court of Enquiry his reputation is blasted. And if he has to make good the deficiency out of his own pocket his financial position becomes such that he can no longer live like an officer and gentleman. Which is bad for the moral of the R.A.F.

The whole position is palpably absurd and something ought to be done about it. Naturally a commanding officer has to be responsible for the efficiency of those under him and for their good behaviour, but to fine an officer the amount of the defalcations of an absconding pay officer or stores-accounts officer is about as sensible as it would be to hang the Officer Commanding an infantry battalion because the junior subaltern had committed a murder. There is in fact the making of a very fine scandal on this very point if the daily press cares to take it up.

The Official Limpet Scandal.

But the real scandal of the future will probably be unearthed not because some hard-working C.O. has had to pay for the dishonesty or incapacity of a subordinate whom he has not chosen but because in an effort to prevent such happenings the Air Council has produced an accounts organisation which is huge out of all proportion to the size of the combatant side of the R.A.F. The scandal will be the spending of money on more and more officials who are non-combatants. It will in fact raise all the old nonsense about "Cuthberts" and "Whitehall (or Kingsway) Limpets" and "Dux and Drakes" and "Dilly and Dally" and so forth over again in a new form.

The Air Council, presumably at the instigation of the Air Ministry Secretariat or the Treasury or some similar agglomeration of financial experts, is already laying the foundation for the scandal with all the best intentions in the world. Some time ago it instituted a new branch of the R.A.F. consisting of Stores Officers. Then it created Stores Accounts Officers who went through a special course of stores accountancy at Ruislip and emerged as Pilot Officers, Flying Officers, Flight Lieutenants and so forth, regardless of the fact that most of them had never been in an aeroplane and some of them had never seen one except in the air. There might have been some reason for calling them Observer Officers (Grades I, II, or III) because it was their job to observe accounts, but giving them flying titles was obviously absurd.

Some of these Ruislip products have proved to be quite good fellows. Some few in fact are former war-pilots—though one would have thought that none but incapacitated aviators would have been accepted for the Ruislip course. Others are not such good fellows and so are not popular at their stations. And others again have turned out to be absolute wrong-'uns (to use the vulgar but expressive phrase).

A Lamentable Outlook.

Apropos which a quaint story is told, illustrative of the way in which a dog may get a bad name and be hanged. At a dance given at a big R.A.F. Station a senior officer of the R.A.F. observing a very spruce and ultra-soldierly young officer passing asked his partner, the wife of a junior R.A.F. officer, a knowledgable young woman with a bitter tongue, who this budding Chief of the Air Staff might be. The young woman replied, "Oh! He's only one of those accounts people

dragged in from Ruislip." "Ah!" remarked the senior officer contemplatively, "Just going into gaol or just out?"

Also, the other day a Mr. Ward-James—a pay-officer, but not a stores officer—was given three years at Winchester Assizes by Mr. Justice Horridge for embezzling accounts at Gosport. Recently sundry other accounts people have been cashiered, it is believed for complicity in the Ward-James frauds. A group of ex-R.A.F. people were discussing the affair, and one of the group remarked that Ward-James was still in the last Air Force list though the Gosport affair happened early in the year and it was thought that he had been cashiered long ago before the Civil Authorities dealt with him. Whereupon a cynic in the group said: "But surely, doing three years is part of the training of accounts and stores people."

Now that sort of thing is all wrong. Apart from the fact that even in the R.A.F. itself people will insist on mixing up Accounts people with Stores-Accounts people, the Stores Branch of the R.A.F. ought to have just as high a reputation for honesty and efficiency as any other branch. But the unfortunate fact remains that it has not.

The quartermaster-serjeants of the Old Army had a fairly lurid reputation for graft of one sort or another—doubtless thoroughly undeserved—but no class of commissioned officer in the Army was ever regarded quite as the unfortunate Accounts and Stores-Accounts officers of the R.A.F. have come to be regarded, thanks to the dishonesty of a very small percentage of their number coupled with the lack of popularity of a larger percentage of them so far as the flying personnel are concerned. It is extraordinarily hard luck on the numerous really good men among them.

Paper versus Practice.

One believes that much of their unpopularity is due to the system which they are obliged to operate. The active-service officer has a horror of figures, forms, and paper routine in general. And he regards with suspicion and dislike anybody who is able to understand all these things which are a mystery to him. Which is an exact parallel to the way in which the first-class technical man or practical aircraft designer and constructor regards with suspicion and contempt the high-browed scientist or figure-shifter or *x*-chaser, as he calls him, who though incapable of designing an aeroplane himself occupies high positions in aeronautical circles and acquires rewards from those in authority or prevents awards to meritorious designers and constructors.

The truth seems to be that the present accounting and stores system is altogether unnecessarily complicated and cumbersome. One makes the statement on the authority of several quite bright people who know something about it. Conceivably improvements might be suggested if active-service people of experience were asked for their opinions. But unfortunately the Stores Branch seems to be as far divorced from the active-service people for whose benefit it was intended as the theoretical scientific people at the Air Ministry and the N.P.L. and Farnborough are from the pilots and technical officers who do the flying and have the running of the aeroplanes with whose production and improvement the pseudo-scientists so constantly interfere.

Fixing Responsibility.

One intelligent young officer who has had experience of the Stores-Accounts people suggests that instead of the O.C. Station being responsible for missing stores or errors in accounts the responsibility should be laid on the Air Ministry Auditor. At present, it seems, the Auditor visits a station once in three months and checks the accounts, so that he may with luck discover that certain money has already gone—he knows not whither. The suggestion is that an Auditor should visit each station once a fortnight and so find whether money or stores are in process of going. And he, not the active-service C.O., should be personally responsible for losses.

Of course the suggestion was made as a jest, but many a true word is spoken in jest. The underlying idea was the absurdity of holding the C.O. responsible and the absurdity of expecting active-service officers to understand a system of account-keeping which would puzzle an insurance actuary and the absurdity of creating and maintaining an enormous staff of paper-wallahs to run stores and accounts

The Only Remedy.

If the Treasury (commonly represented by "Dux and Drakes" or "Dilly and Dally") would come down to the practice of ordinary commerce it would see that it would be cheaper to lose a few hundred pounds' worth of stores—or at any rate to allow a reasonable margin of error in the keeping of accounts by hands more used to the gun-trigger than the pen—than to spend as many thousands in unnecessary paper work and superfluous staff. Surely it is better to let a station be £200 out one way or other at the end of a year than to spend £2,000 on extra stores- and accounts-officers, auditing, paper-work, clerks and so forth.

Unfortunately no Treasury official would sanction a plus-or-minus margin on a percentage-of-value basis, which would be the sensible thing. Therefore the only remedy, so far as the Air Council is concerned, seems to be the institution of an entirely new stores system which can be worked by ordinary human being and can be checked by an ordinarily intelligent Commanding Officer. Failing that the present Stores-Accounting branch and the other non-combatant and non-productive branches must go on growing and growing till, as already mentioned, another full-dress R.A.F. scandal is exploited in the Press and debated in Parliament.—C. G. G.

ERSKINE CHILDERS.

On November 24th, Erskine Childers, D.S.C., formerly Lieutenant R.N.V.R. attached R.N.A.S., and later Major R.A.F., was shot in Dublin as a rebel against the Government of the Irish Free State. His life and death form one of the most curious tragedies of modern times. Well born, the nephew of a Cabinet Minister under Lord Salisbury, with all the advantages of a first class public school and university education, an Englishman without any racial connection with Ireland, he died an anarchist firmly believing that he gave his life for Ireland. Many who in the ignorance and enthusiasm of youth begin by being philosophic anarchists end in the odour of sanctity as confirmed conservatives. The converse is rare.

On leaving the university Childers held a responsible post in a Government department which he left temporarily to serve Queen Victoria as a volunteer in the Boer War. Thereafter he spent his holidays cruising in small boats along the German coast round and behind the Friesian Islands between Wilhelmshaven and Holland. The result was that extraordinary book "The Riddle of the Sands," which in the disguise of a sensational novel of adventure taught a strategic lesson which should have been the pivot of the plans of our Naval Staff's strategy if we had had a Naval Staff and if the Navy had known the meaning of strategy.

This book did nevertheless exercise tremendous influence on the younger and intelligent officers of the Navy whose brains had not yet been atrophied by Naval life. And many officers who won rewards for good work at sea during their war owe the foundation of their fortunes and promotion to Erskine Childers as the force which opened their minds to a new line of thought. For this work alone Childers deserves the gratitude of the English people.

At the outbreak of the recent war Childers joined the Navy and was appointed to one of that flotilla of cross-Channel steamers turned into aircraft-carriers, the *Empress, Engadine,* and *Riviera,* which under Squadron-Commander Cecil L'Estrange Malone R.N., carried out the famous raid on Cuxhavn and Wilhelmshavn on Christmas Day 1914. On that day Erskine Childers was an observer in one of the raiding seaplanes and acquitted himself gallantly. It was remarked at the time in this paper how peculiarly apposite it was that the man who was the first to disclose the strategic importance of the Friesian Islands should be the first to fly over them in the war which he foretold.

Thereafter Childers served with Wing-Commander Malone in the *Ben-my-Chree* in the Eastern Mediterranean and continually flew as observer in seaplane raids across Palestine and over the Turkish ports in Asia Minor. His bravery was remarkable, his intelligence was of the keenest, and his loyalty was unquestionable, but even in those days—as the pilot with whom he flew most frequently told one a few days ago—it was unwise to discuss the Irish question with him. But apart from that he was liked and admired by every officer and man with whom he served.

It is curious that both he and the brilliant young officer under whose command he served so long should have "gone Bolshie" after beginning the war by doing such strikingly good work. In each case their perversion has been ascribed to disappointed vanity or thwarted ambition. Personally, having known Mr. Malone rather well for some ten years, and knowing something of Childers at close second-hand, one prefers to ascribe their downfall simply to that lack of mental balance which so frequently afflicts those who are unusually brilliant.

The perversion of such minds is largely due to their inability to suffer fools gladly and to regard philosophically the slow growth under the direction of ordinary human beings of a state of affairs which they believe they could produce in a moment of time. Theirs is in fact a form of madness produced by a frantic impatience. Which is why the greatest genius is an infinite capacity for taking (and bearing) pains rather than a reliance on pure inspiration. With a fair share of plodding thoroughness both Malone and Childers might have been valuable and valued servants of the King and assets to the British Empire.

Of the career of Childers since the war more than enough has been written in the public press. Those who know him best agree that his last phase, that of an Irish Bolshevik, was produced by the malign influence of his Irish-American wife. This has already been made clear by the *Morning Post's* special correspondent in Dublin, the one writer in the English daily press who thoroughly understands the psychology of the Iberian Irish minority and who is capable of describing that minority and its crimes in almost adequate language.

As to the wisdom or otherwise of the Free State Government in executing him there must be interminable argument. Personally one believes it was an error of policy in that it can only be taken as a sign of weakness and do harm to the Government outside Ireland, just as the execution of Nurse Cavell did harm to the German cause outside Germany. Although her execution was justifiable by every known law of war in that she used the Red Cross as a camouflage for the Belgian "underground railway" as it was called yet it would have been better for Germany if she had merely been deported.

The right place for Erskine Childers was Broadmoor Asylum, along with Ronald True and Colonel Rutherford, criminal lunatics like himself. Shooting him merely made him a martyr in the eyes of some few people, mostly pro-Irish or anti-English rather than actually Irish. To the Irish themselves Childers was merely an Englishman who had come to be of use to them. He was in fact nothing much more than a somewhat glorified version of Broadbent in Mr. Shaw's "John Bull's Other Island." The Englishman who tries to help Ireland is to the Irish merely a tool to be used or an orange to be sucked and then thrown away when used, as Parnell and more like him have been thrown away. The only Englishman who can do Ireland any permanent good is the Englishman who governs and governs thoroughly, a Strafford or a Balfour or even a "buckshot" Forster. The merely bullying brutality of a Cromwell or a Greenwood is one degree more harmful than the would-be helpfulness of a Birrell.

To the Iberian Irish, who are the Irish Republicans, Erskine Childers is just another fool Englishman who has been used. And the Free State Government are always open to the suspicion that knowing this they executed Childers because by doing so they would not create a new first-class martyr as they would if they executed Rory O'Connor—another amiable fanatic but purely Irish—or De Valera who by his parentage is more Iberian than the ordinary Iberian Irish. If his execution was not ordered with that fact in view, then the act of the Free State Government was that of what the French call "the enraged mutton."

The execution of Childers and his four corner-boy fellow victims may intimidate a few dozen more corner-boy gunmen, much as the great Crucifixion including the two thieves must have had a salutary effect on the predatoriness of the contemporary Jews. But poor Childers, being an Englishman, will never become an Irish martyr nor the Saviour of Ireland. Which knowledge will probably be his particular Hell in the life to which he has gone. It is better that those officers and men of the R.A.F. who knew and admired him should remember him merely as a good comrade who in his later years was afflicted by God.—C. G. G.

R.A.F. INTELLIGENCE.

Appointments.

Air Ministry, Nov. 21st.

Grp/Capt. C. S. Burnett, C.B.E., D.S.O., from R.A.F. Base, Leuchars, to R.A.F. Depot, 1/12.

Wing/Cmdrs. F. E. T. Hewlett, D.S.O., O.B.E., from R.A.F. Depot to Half-Pay List, 14/11; P. H. L. Playfair, M.C., from No. 1 F.T.S. to command R.A.F. Base, Leuchars, 15/11.

S/Ldr. (Act. Grp/Capt.) H. C. Ellis, C.B.E., from R.A.F. Depot to Command Accounts Office (Palestine Command) on ceasing to be attached to Air Ministry, 11/8. Substituted for the previous notification which appeared in Intelligence Bulletin, dated 20/8.

S/Ldrs. W. Sowrey, D.F.C., A.F.C., from R.A.F. Depot to No. 1 F.T.S., 30/10. Substituted for the previous notification which appeared in Intelligence Bulletin, dated 1/11. The notification concerning this Officer which appeared in Intelligence Bulletin, dated 7/11, is hereby cancelled. I. T. Lloyd, from No. 2 F.T.S. to command No. 56 Squadron, 15/11; H. I. Hammer, D.F.C., from R.A.F. Depot to No. 2 F.T.S. 10/11.

F/Lts. A. W. C. V. Parr, from No. 1 F.T.S. to C.F.S., 8/11; E. N. H. Gray, D.Ph., from No. 27 Squadron (India) to No. 31 Squadron (India), 11/10; H. W. G. Jones, from No. 28 Squadron (India) to R.A.F. Depot (Supernumerary), 19/10; J. A. G. Haslam, M.C., D.F.C., from No. 7 Group H.Q. to School of Army Co-operation, 16/11; R. S. Topham, M.B, D.Ph., from No. 31 Squadron (India) to R.A.F. Depot (Supernumerary), 17/10.

Capt. (Temp. Maj.) S. C. R. Crawford, O.B.E. (5th Batt. East Surrey Regt.) (T.A.), H.Q., Iraq Command, for duty as Deputy Judge Advocate-General (Class B.B.), on attachment to R.A.F.

Waziristan Awards.

The *London Gazette* of November 21st states that H.M. the King has approved of the undermentioned dewards in recognition of gallant and distinguished service in Waziristan :—

Bar to the Distinguished Flying Cross.—F/O. C. McC Vincent, D.F.C. Distinguished Flying Cross.—F/Lt. W. A. Coryton, M.V.O.; F/Lt. A. L. Fiddament.

A W.R.A.F. Affair.

Ex-W.R.A.F. personnel who are still connected matrimonially with the R.A.F. will perhaps be interested to note that the W.R.A.F. Old Comrades Association are holding a Christmas Fair and Carnival on December 2nd at St. Peter's Hall, Lower Belgrave Street, Victoria. The Fair will be opened at 14.30 hours by Lady Trenchard.

R.A.F. SPORTS AND PASTIMES.

No. 5 F.T.S. Shotwick.

Athletic Sports :—These were held on the station sports ground on September 6th. Excellent organisation and hard work on the part of the promoters and admirable weather conditions combined to make the meeting the most successful ever held on this station. The general athletic standard attained was not very high, but failure to break records was amply compensated for by the keenness of the competitors and the enthusiasm of the numerous spectators.

A special prize, a fine silver goblet, presented by the N.A.A.F.I., for the best individual performance, was won by AC.1. Sharp, R.; a second special prize, presented by Brown's, of Chester, was won by P/O. Venmore in the officers' race. The proceedings were most enjoyably enlivened by the station band.

The results were as follows :—Long jump, AC.1. Sharpe; one mile, AC.2. Parrish; sack race, L/AC. Pringle; ladies' race, Miss McGee.

120 yards hurdles, F/O. Divers; serjeants' race, Sjt. Smith; 220 yards, AC.1. Sharpe; high jump, P/O. Firmin; putting the shot, Cpl. Ramsbottom; three miles, AC.1. Riley; 100 yards, P/O. Drysdale.

Relay race, No. 4 Squadron (F/Lt. Skeet, P/O. Firmin, P/O. Glover, F/O. Divers); officers' race, P/O. Venmore; half-mile, P/O. Firmin; tug-of-war, No. 1 Squadron; obstacle race, L/AC. Pringle; tug-of-war (serjeants v. officers), Officers; 440 yards (open), AC.1. Sharpe; band race, AC.2. Rider; 440 yards, P/O. Firmin; tilting the bucket, P/O. Addison and P/O. Boulton.

Champion athlete, AC.1. Sharpe, R.; best clowns, AC.2. Castle; Cpl. Steers.

At the conclusion of a most enjoyable afternoon, the prizes were presented by Mrs. F. K. Haskins.

Association Football.—The intermediate period between the cricket and football seasons has been marked by a greater degree of inactivity than usual—this being mainly due to the prevailing inclemency of the weather. The only results to be reported during the months of August and September are those of the Association Football Club.

The two teams that the station has entered in the 1st and 2nd Divisions of the Chester and District League have already begun to draw special attention to themselves. The 1st XI., up to the time of writing, hold an unbeaten record, degree of inactivity than usual—this being mainly due to the not quite so fortunate in their results, are showing great improvement, and are now well on the road to emulate the success of the senior team.

The results are as follows :—1st XI.—Chester Leadworks v. Shotwick, won 2—1; Shotwick v. Tarvin, drawn 1—1; Grosvenor Motor Works v. Shotwick, won 5—1; Shotwick v. Reliance, drawn 1—1.

2nd XI.—Shotwick v. P.S.A., won 3—1; Farndon v. Shotwick, lost 1—5; Victoria Saltney, v. Shotwick, won 3—0; Shotwick v. Brickfields, lost 5—0; Brickfields v. Shotwick, drawn 0—0.

R.A.F. Mediterranean.

Cricket.—During the month of July three matches were played by the First XI., one of which was won and two drawn. The first was against Army Officers, the R.A.F. scoring 149 and the Army Officers 131. Comparing the numbers of personnel available from which the two teams were selected, this victory was a creditable one for the R.A.F. H.E. the Governor, who was present, complimented the R.A.F. on their excellent fielding. The chief batting scores were L/AC. Townsend 43 and F/Lt. Elmhirst 29. L/AC. Townsend took 6 wickets for 39 runs.

Playing against the Mediterranean Fleet C.C. the R.A.F. made 212 for 6 wickets and the M.F.C.C. 241 for 9. F/Lt. Rook made 114 runs and F/O. Waring 32. F/Lt. Rook also took 4 wickets for 34 runs.

In the match against the Eastern Telegraph Co.'s First XI. the R.A.F. made 170 for 7 wickets and the E.T.C. 293 for 7. F/Lt. Rook made the top score of 63 runs and F/Lt. Stewart took 2 wickets for 23 runs.

The consistent batting of F/Lt. Rook has been the outstanding feature of this season's cricket on the Island. He has scored three consecutive centuries, which together with

his consistent all-round play suggests that he is likely to be included in the R.A.F. team next year, as he returns to the Home Establishment in September.

The R.A.F. Second XI. played two matches during July, winning both of them.

Another interesting match was played between the R.A.F. Officers and Other Ranks. The Officers made 119 runs and the Other Ranks 42 in the first innings and 106 for 7 wickets in the second. S/Ldr. Bryant knocked up 30 and F/Lt. Stewart 23 not out. F/Lt. Rook took 6 wickets for 15 and F/Lt. Elmhirst 3 for 21. For the Other Ranks L/AC. Townsend scored 82 and L/AC. Jones 28, L/AC. Golding taking 4 wickets for 23.

CRICKET.—Owing to the majority of the team being on leave, and to a certain amount of sickness, only three 1st XI matches were played during the month of August as follows :—

v. H.M.S. *Calypso* : R.A.F., 141 for two wickets; *Calypso*, 224 for five wickets. This match resulted in a drawn game, F/O. Waring and F/Lt. Stewart scoring 60 and 45 not out, respectively. Bowling, F/Lt. Rook did very well.

v. Mediterranean Fleet C.C. : This game was also drawn, the R.A.F. team scoring 176 runs, and the opponents, 141 for eight wickets. Batting, F/Lt. Norton made 44, F/Lt. Rook 28, and L/AC. Hull 23. The taking of the wickets was evenly distributed among the R.A.F. bowlers.

v. H.M.S. *Calypso*—return match : This match the R.A.F. team won, making a total of 255 runs for four wickets. The *Calypso* team were dismissed for 122. F/Lt. Rook knocked up a good 153, Cpl. Townsend 58, and F/Lt. Stewart 23 runs. Bowling, F/Lt. Rook took six wickets for 48 runs in the opposing team's first innings, and six for 57 in the second innings.

The 2nd XI v. Royal Engineers : The Army team proved the victors in this case, making a total of 148 runs against the R.A.F. total of 66. Of the R.A.F. total, L/AC. Yeo made 28 runs.

v. Floriana C.C. (a civil club) : This game was closely contested, the R.A.F. team winning by the narrow margin of four runs. Batting, L/AC. Yeo made a useful 41, and L/AC. Parkinson 35, the final scores being R.A.F. 108, and Floriana C.C. 104.

Another match was arranged and played between the officers and the "other ranks" of No. 267 Squadron, the officers winning by 24 runs. Scores, Officers 155, Other ranks 131. For the officers, F/Lt. Norton and F/Lt. Stewart made 55 and 45 runs respectively, and bowling, F/Lt. Stewart took four wickets for 40 runs, F/Lt. Simpson three for 49. For the other ranks, Cpl. Gill knocked up 34, L/AC. Yeo 44 and L/AC. Parkinson 20, whilst AC.1. Butcher took three wickets for 20 runs and Cpl. Townsend two for 59.

TENNIS.—An increasing number of personnel are playing tennis and two tournaments have been played against local clubs. One was won and the other lost.

AQUATICS.—For the third year in succession, the Relay team of No. 267 Squadron won the relay race (open to all teams on the Island) at the Annual Aquatic Sports of the Royal Garrison Artillery. The team comprised :—F/O. J. Shakeshaft (the trainer), L/AC. Seagell, AC.1. Macklin, L/AC. Eggles.

At the Aquatic sports of H.M.S. *Egmont* (the Naval Depot of the Mediterranean Fleet) the R.A.F. team secured second place, F/O. Shakeshaft standing down for L/AC. Blake. F/O. Shakeshaft obtained second place in the Officers' 100 yards (open).

POLO.—The R.A.F. Polo team also suffered by most of the regular team being on leave, but the following team, which played two matches, showed up very well :—No. 1, F/Lt. Carnegie, A.F.C.; No. 2, F/Lt. D. Iron, O.B.E.; No. 3, F/O. Rankin; Back, Air/Com. Samson, C.M.G., D.S.O., A.F.C.

In the first match, the R.A.F. team were defeated by nil goals to four, by the 1st Bn. Gordon Highlanders, but proved the victors by one goal to nil in a subseqent match played against a mixed team selected from Army officers in the Command.

POLO.—A closely contested game against the 2nd Sussex Regt. on July 28th resulted in a draw of one goal all. The R.A.F. were handicapped by being compelled to play one man short for the first chukka. The R.A.F. team was composed as follows :—No. 1, F/O. Carnegie; No. 2, F/Lt. Elmhirst; No. 3, F/Lt. Iron; back, Air/Cmdr. Samson.

A South African Re-union.

The Second Annual Dinner of officers and ex-officers of the R.N.A.S., R.F.C. and R.A.F. in Johannesburg took place on October 28th with Capt. Wallace in the Chair. Although the arrangements were everything that could be desired it is a regrettable fact that only seventeen former officers of the Flying Services attended. And strange though it may seem not one single officer of the existing South African Air Force took the trouble to go over from Victoria for the re-union although they only had forty miles to travel to get there. It is to be hoped that better fortune will attend the re-union dinners of Air Force personnel in future.

A Matter of Kit.

Rather a hard case has recently been brought to one's notice which deserves publicity, if only as a warning to young officers of the R.A.F. Some time ago, when it was made compulsory for R.A.F. officers to wear mess kit and before the question of allowances for uniform had been settled, a tout from one of the big advertising outfitters visited a certain station canvassing for orders. In order to secure business the tout in question assured officers that he knew for a fact that a special Air Ministry allowance was to be made for mess kit and that to prove his statement he was prepared to supply the new uniform without any payment whatever until the kit allowances had been paid. In this way he secured at least one order for a complete set of mess kit at a price which was roughly eight guineas higher than that at which the same kit is quoted by quite good tailors.

Ultimately it was decided that no allowances for mess kit were to be made by the Air Ministry. This announcement was followed by a demand from the outfitters in question for payment for kit supplied and the demand was followed by a threat to sue the officer concerned. As the officer in this case is still in the Air Force he has had to make arrangements at considerable personal inconvenience to settle the account.

The R.A.F. is a young Service and the majority of its officers are extremely innocent when brought into contact with the wiles of outfitters who make pleasing promises and gradually inveigle young officers deeper and deeper into debt. Some day the young officers of the R.A.F. will learn that it is very much better to go to old-fashioned firms of Service tailors in quiet back streets, where they will not only get better treatment than they do from some of the much-advertised firms but they will get a better cut, probably better material and almost certainly better prices. Any officer of the old Army can give young R.A.F. officers good advice on this subject.

AN AFGHAN AIR FORCE.

The *Telegraph's* correspondent at Allahabad, telegraphing on September 6th, says :—"At Kabul, official interest increases in the aerial branch of the Afghan army, of which the nucleus is now actually in being. The arrival of seven aeroplanes from Russia was reported some months ago, and two additional planes were recently received *via* India. Reports are persistent in Peshawur that two of these aeroplanes have already taken to the air and have been seen at work in the neighbourhood of Kabul. Numbers of Afghans have already received training as mechanics, but it is not clear from what source pilots have been, or will be, provided."

This Afghan Air Force ought to be really funny. Aeroplanes built by Russian Bolshie factories and tended by Pathan mechanics should stir even Mr. Heath Robinson to envy. Those who have met Pathans serving as Lascar stokers and so forth on East-going steamboats may form some idea of the humorous incidents which are likely to arise in rigging and truing the machines. Machines built and tended by Germans and piloted by Turcoman horsemen who had been taught to fly might be dangerous. But a Russo-Afghan air fleet would be even more comic than Sir Percy Scott's Anti-Aircraft Corps.—C. G. G.

PERSONAL NOTICES.

BIRTHS.

FLETCHER.—On November 16th, at 54, Woodstock Road, Golders Green, N.W., the wife of Wing/Cmdr. J. N. Fletcher, A.F.C., R.A.F.—a daughter.

PRALL.—On November 25th, at Highlands, Cobham, Kent, to Muriel, wife of S/Ldr. Gerrard Prall—a son.

MARRIAGES

BENJAMIN—CRESER.—On November 16th, Charles Menten Benjamin, late R.A.F., younger son of Mr. and Mrs. H. N. Benjamin, of 14, Cadogan Square, S.W.1, to Margaret (Peggy), youngest daughter of Mrs. and Dr. Wm. Creser, of the Trinity College of Music.

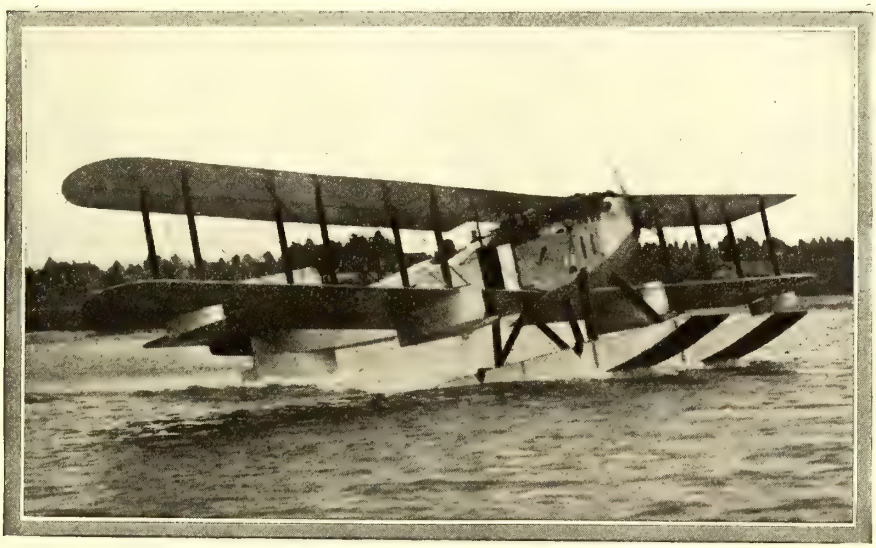
GRESWELL—MOORE.—On November 18th, at Bushey Church, Herts, Clement Hough Greswell, only son of Mrs. Caversham Simonds, of Wellesbourne Hall, Warwickshire, to Violet Constance Moore, daughter of the late Capt. G. H. Moore, R.N., formerly of Campden Hill, Cranbrook.

ENGAGEMENTS.

ROBERTSON—BURNS. The engagement is announced, and the marriage will shortly take place, between Mr. Brian Kyte David Robertson, A.F.C., R.A.F., elder son of Mr. James Kyte Robertson, A.M.I.M.E, of Bristol, and Edith Katharine, younger daughter of Mr. and Mrs. Peter Burns, of Edinburgh.

WHITTAKER—FINLAY.—A marriage has been arranged between S/Ldr. John Tudor Whittaker, M.C., Crown of Italy (Cavalier), Croix de Guerre, R.A.F., youngest son of the late T. Powell Whitaker and Mrs. T. Powell Whittaker, St. Leonards, Sussex, and Kathleen Mary, youngest daughter of the late F. W. Finlay and of Mrs. Finlay, Wolfhill, Belfast.

ACROSS THE SOUTH ATLANTIC



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fitted with a 360 h.p. Eagle VIII Rolls-Royce Engine.

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Capt. MacMillan arriving at Karachi.

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London.

Gentlemen,

Several things may interest you in connection with the flight from London to Calcutta in which I piloted a 240 h.p. SIDDELEY PUMA—D H. 9 supplied by A.D.C.

We made the first non-stop aeroplane flight across the eastern Mediterranean from Athens to Egypt (Sollum), a distance of 485 miles, in 4 hours 30 mins. Not once during this sea crossing did the engine give a moment's cause for anxiety.

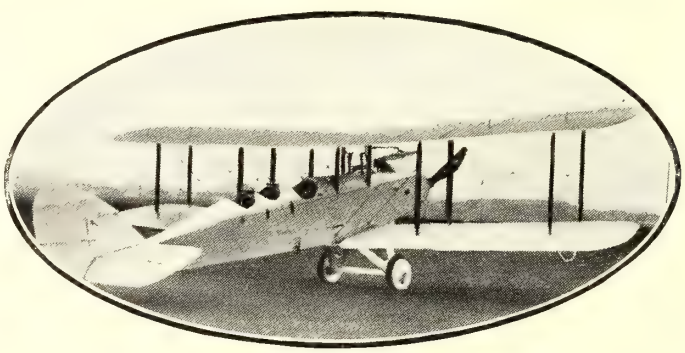
We made the first flight across India during the monsoon—through tropical storms and with temperatures ranging up to 123° F. in the shade. Mountain flying and desert flying we had in plenty, bad going in the air and on the ground.

The load carried was far in excess of the war load for which the machine was designed and the strains imposed upon her were vastly greater than would have been the case with normal load.

It is not possible to say we had no trouble—I feel certain that any present day machine would have given trouble under the conditions we encountered—but I think that its performance in carrying us to Calcutta speaks eloquently for the condition of the machines which you supply.

Yours faithfully,

NORMAN MACMILLAN (signed).



The A.D.C. 3 seater D.H.9 used in the flight.

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THE WEEKLY COMMENTARY.

The paper by Mr. McKinnon Wood on the relation between model tests and full-scale results may be regarded as a very strong confirmation of views which have long been expressed in this paper.

Capt. Sayers some time ago suggested that the "usual type" of aeroplane owed its existence to the fact that it and it alone behaved as model tests indicated it should behave. Mr. Wood claims no more for model tests than that they allow reasonably good prediction of the performance of machines of "the most usual type."

It may now be hoped that the wind tunnel will return to its proper sphere of activity—that of an instrument for the elucidation of the theory of aerodynamics—and that wind—tunnelisms shall no longer be allowed to impede the progress of aircraft design.

THE CO-RELATION OF MODEL AND FULL SCALE WORK.

In a paper bearing the above title, read before the Royal Aeronautical Society on November 16th, Mr. R. McKinnon Wood dealt with the question often already discussed in these pages—of the relations which exist between the results obtained from tests of aircraft models in the wind-channel and those obtained by tests on full-sized machines in full flight.

Mr. McKinnon Wood is thoroughly well qualified by experience to discuss this important subject—a very large portion—if not the greater portion of his time is occupied in the work of attempting to reconcile the results of one type of test with those of the other. The paper shows that—as one would expect—he is firmly convinced of both the technical and the practical value of wind-channel work—and it is therefore gratifying to find that in this paper he acknowledges fully the fact that a very considerable degree of caution is necessary in accepting model tests as an infallible guide to full-scale performance in any case, and that in some cases in the present state of our knowledge such tests may be so misleading as to be useless for immediate practical purposes—however valuable they may be as guides.

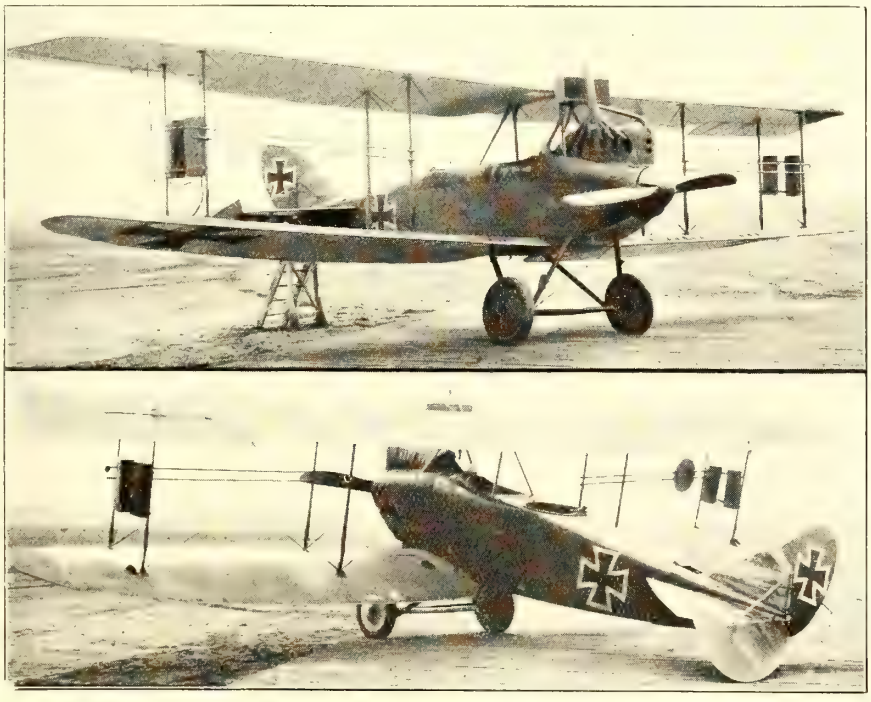
THE PAPER.

The paper opens with the sentence :—"Model tests are capable of a wide usefulness in aeronautical engineering *if* the model work can be satisfactorily co-related with the full scale." After a few general examples of the practical uses to which wind tunnel tests may be put the lecturer said :—"The subject of this paper is the '*if*' of my first sentence. Unless we can establish some relation between the model work and the full scale our model work must be of very uncertain value."

Dealing with the theoretical aspect of this relation the lecturer, after briefly mentioning the well-known principle of dynamic similarity as applied to aerodynamics and to the impossibility in existing tunnels of securing complete similarity between the model and the full-size machine, considered the nature of the effect on the flow past a solid body of the quality of viscosity, characteristic of all real fluids.

THEORETICAL AND REAL FLUIDS.

For the ideal fluid of classical hydrodynamics, which does not possess this quality, it is possible to calculate the pressures on solid bodies due to motion through that fluid. For bodies such as airship hulls, the pressures so calculated agree very fairly with those measured in a real fluid for the forward portion. There is a wide difference at the tail. In the calculated case for a non-viscous fluid the resultant pressure over the whole is zero—that is there is no resistance. In the real fluid the pressures over the tail do not rise to the calculated values, and there is consequently a resultant. The actual effect of viscosity is twofold—it introduces a frictional drag on the body, and it modifies the form of the streamlines so that they do not follow the body to the tail but break away



FULL SCALE EXPERIMENT IN GERMANY.—The photographs show a war-time German machine equipped for the full scale measurement of control forces

The machine has on the outer interplane struts water-tanks which may be emptied in flight from the cockpit. The machine is taken into the air with known and equal weights of water on each side. In the air one tank is emptied, and the aileron setting required to balance the rolling moment of the full tank is measured. That tank is then emptied to restore the machine to balance for landing.

In addition there is a movable disc of known resistance which can be moved in and out along rails attached to the front interplane struts By moving this disc the turning moment caused by the ailerons can be compensated and therefore estimated, and by measuring the rudder setting which will produce the same result rudder forces can be measured.

prematurely and leave a region of "dead water" and of low pressure, which causes a further drag due to normal pressures. That part of the drag due to this deficiency of pressure aft is commonly greater than the purely frictional drag, and the scale effect on drag is not confined to the frictional part thereof. Tests on streamline bodies show that there is a large scale effect at low values of v.l., but that this becomes quite small with increasing speed and size of models, and from this evidence it is concluded that, although tests on small models at low speeds may be valueless, it may be possible to carry out tests at speeds and with sizes of models sufficiently large to give close approximation to full-size conditions.

The Circulation Theory of Aerofoils.

In a real fluid a body which was not symmetrical about its axis of movement experienced a cross wind—or lift—force. In the ideal non-viscous fluid a lift force could be explained if one supposed the fluid to circulate round the body. It was possible for such a circulation to exist in conjunction with the general flow past the body in the non-viscous fluid, but there was nothing which would tend to start such a circulation.

The viscosity of the real fluid, however, was able to initiate such a circulation—in fact, it could be shown that it was an essential to its production. Therefore, despite the very serious difficulties which viscosity introduced into the theory of aerodynamics one should be grateful for its existence—without it there would be no lift.

It seemed that a good approximation to the lift of a real wing might be obtained by calculation if one assumed a circulation in a non-viscous fluid, if it were possible to determine what governs the strength of the circulation caused by viscosity in the real fluid. In regard to the question of scale effect, the important matter was whether the strength of circulation depended on the magnitude of viscosity or only on its existence.

Joukowski had endeavoured to calculate lift in accordance with this circulation theory, and had obtained figures for certain wing forms which must be regarded as very satisfactory approximation to the lifts measured on models. The interest of this theory lay in the fact that it implied that the circulation, and therefore the lift, depended principally on the existence of viscosity and very little indeed upon its magnitude. This would lead one to expect very little scale effect upon lift.

These theories applied to aerofoils of infinite aspect ratio only which were the only ones which could have uniform circulation, and therefore uniform lift along the whole span. Prandtl had successfully applied the circulation theory to wings of finite aspect ratio, and from the results of his theory one might safely assume that in certain cases wind tunnel tests might be applied without any scale correction. There could, for instance, be no scale correction as between lift and downwash—whatever might be the scale effect concerning the relations between lift, drag, and incidence.

Model Test Conditions.

Model tests in the wind tunnel did not exactly conform to full-scale conditions. The wind tunnel was designed to produce a steady parallel flow of uniform velocity. The variations of speed observed in a good tunnel are of the order of 1 per cent. The honeycomb prevents the formation of large eddies, but the air must be full of small eddies, and possibly this "micro" turbulence has some effect on the results.

The walls of the channel constrain the flow, and influence the results to an effect depending on the relative size of model and channel. Prandtl's work had provided a method of calculating the correction necessary, which had shown itself able to reconcile results tested over a wide range of ratio of model to tunnel, and thus could be regarded as overcoming this difficulty.

Then there is the difficulty that model tests are often tests of isolated components which must be applied to complete aircraft with caution. The most complete model tests customarily used do not represent an aircraft flying under its own power. The action of the slip stream upon the tail unit is important and large, and one which the author would hesitate to estimate. The mutual interference of parts is large, particularly when the parts are of low resistance form.

Full Scale Conditions.

The conditions of full scale work are those in which one is actually interested, and of which the model conditions are representations. When the full-scale aeroplane is used as a laboratory for analytical observations the conditions are essentially correct—although the analytical method may fail—as, for example, if the aeroplane is regarded as a means for deducing the characteristics of a wing isolated in free air. One important point calls for attention. What is wanted is a measure of performance under standard conditions of still air. A small vertical current will introduce serious errors in the value of rate of climb, level speed, and gliding angle. What is needed is to measure the inclination to the horizontal of the path of the craft through the air—not as now, the inclination relatively to an earth horizon. Of late years the Royal Aircraft Establishment has made a direct attack on the problem of the relation of model to full-scale results. Recently these experiments have been simplified by suppressing the influence of the power plant and testing the full-scale machine gliding with the airscrew locked in a predetermined position. The quantities measured are the weight of the aeroplane, the indicated air speed, the air density, the rate of loss of height, and the inclination of the machine to the horizon.

Another line of experiment is by measuring the pressure at a large number of points on the full-size wing and on a model of that wing in the channel.

Experimental Evidence.

The total amount of experimental evidence available as to the relation of model and full-scale results is very large, and the author was only able to touch briefly on some typical results. Certain of these, including those relating to an aerofoil of aspect ratio 6 tested over a speed range of 4 to 1, to tests of a full scale B.E.2E. and a model thereof, to an S.E.5A., show a "scale effect" which is negligible in practice as between models tested at reasonably high speeds, and the figures deduced from full-size tests. Concerning these the author says—"In my opinion we may conclude that carefully conducted wind channel tests give a very good prediction of full-scale performance for the most common type of aeroplane—the thin-winged biplane; but we must be cautious of generalising this conclusion."

The Annoying Behaviour of Thick Wings.

The well-known case of R.A.F.19 section is then mentioned. Tested at a low speed this wing section gave a very high maximum lift, and a sudden stall, accompanied by dual values of lift at the stall, the higher or lower values occurring according as the stall was approached by increasing or decreasing the incidence. At higher speeds the stall became more normal. Model tests on a B.E.2E. with wings of this form at varying speeds showed a tendency for the scale effect to die out at a speed of 120 ft. per second—as would be expected—but tests at full scale showed a wide departure from model results, and a great fall off in lift. An endeavour to extend the range of the model tests by using a model 13 in. by 52 in. in the fastest tunnel in this country showed a steady fall in lift at increasing scale.

This result is corroborated by certain tests of heavily cambered aerofoils at high speeds made in the Göttingen laboratory. The fall in lift at full scale seems to be a property of large camber of the upper surface.

Full-scale experiments on centre of pressure give rise to certain difficulties. It is difficult to reconcile the idea of scale effect on centre of pressure with that of no scale effect on lift, but full-size tests seem to indicate a large scale effect on C.P. on wings where the scale effect on lift appears negligible.

The author concludes that ultimately we may achieve a complete theory of viscous flow, but we are far from this as yet, and at present theory cannot take us far. In the meantime we must expect to find departures of the full scale from predictions based on the model; but as the experimental evidence has accumulated the basis of model tests has acquired a basis of considerable certainty. Scale effect is evanescent upon most of the forms which it is desired to use, and it is possible to conduct model tests in these cases upon a scale sufficient to give accurate predictions. On the other hand, when it is desired to use forms typified by the R.A.F.19 wing this cannot be said, and the author is anxious to see a compressed air tunnel built as the most rapid means of investigating shapes possessing these unlooked-for habits. In any case, the comparative full scale and model work requires to be vigorously continued by the most accurate means that can be devised.

Points from the Discussion.

Mr. Relf, of the National Physical Laboratory, said that every effort was being made to establish some kind of a theory of the flow of viscous fluids on a sound basis. To that end the N.P.L. were measuring velocities and pressures round an aerofoil section with great care, and in the meantime the Chairman (Dr. L. Bairstow) was attempting to calculate the flow round the same aerofoil. He thought the results of this research could not help but advance theory and so help towards a clearing up the "scale effect" problem.

Dr. Bairstow objected to the lecturer's distinction between steady flow at very low velocities and turbulent flow at the velocities attained in aeronautics. He was certain that steady flow was possible at very high values of V.L. He expressed his belief that the experiments referred to by Mr. Relf would show no trace of the alleged circulation round an aerofoil which was now in favour as a working theory. He admitted the striking results obtained on the basis of the circulation theory by Prandtl and others, which certainly permitted surprisingly accurate predictions to be made in many cases, but he was fairly certain that we should eventually find that the results obtained by this theory were of an empirical nature.

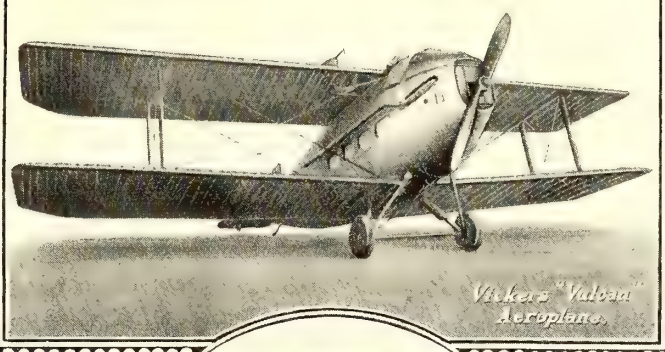
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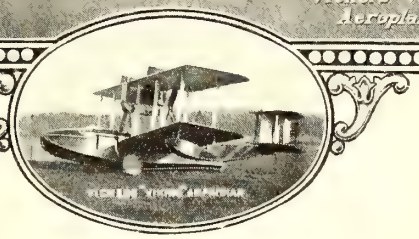
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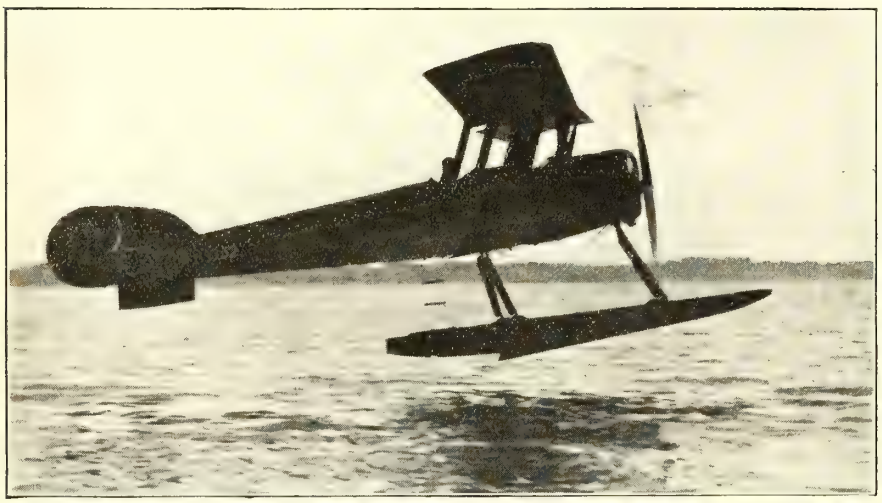




THE BRITISH AVIATION MISSION IN JAPAN.

Various members of the British Aviation Mission which went to Japan under the command of Colonel the Master of Sempill and of other British aeronautical authorities who went to Japan at about the same period have now returned to England, and it is of interest to hear from them that the Japanese are making very considerable progress in aviation.

It has always been acknowledged that the British system of training pilots during the war is the best in the world, better even than the German system and far better than the French or Italian systems, as is proved by the fact that British casualties in training were a comparatively small percentage of the total casualties in the Flying Services whereas in France for a period the number of would-be aviators killed in training was actually higher than the number killed by enemy action. It is not surprising therefore, considering that the instructors selected by the Master of Sempill have been chosen from the very best English instructors, that they should have succeeded in producing quite a large number of very competent pilots for the Japanese Navy in a comparatively short time while instructors of other nations operating on behalf of the Japanese Army have produced extraordinarily few pilots of very much less ability in the same period.



A Japanese pilot alighting in a Japanese Naval Avro after training by the British Naval Aviation Mission organised by Colonel the Master of Sempill.

One gathers from those who have returned to England that though the Japanese pilots are not very quick to learn, as was only to be expected seeing that the Japanese are not a horse-riding nation, they learn very assiduously whatever is taught to them and carry out their instruction with care and intelligence. The result is that their progress as pilots, though perhaps slow according to our ideas, is none the less steady and safe. The number of casualties to Japanese naval aviators in training has been extraordinarily small.

One is told also that the Japanese mechanics, who are in fact naval ratings who have already had considerable mechanical experience, are very careful and painstaking in the way in which they handle the machines when on the ground and keep them in very good repair. The fact that Major Brackley on his 2,000-mile flying-boat tour was accompanied throughout by two other boats with Japanese pilots and crews shows the very great progress made by the Japanese naval aviators and their mechanics.

Also it is said that the Japanese aviators, as might be expected, are absolutely fearless when flying on duty, and as they regard learning to fly as a most important part of their duties naturally they show no signs of fear in their early stages of training. The number of Japanese officers who have done parachute drops in the Calthrop and other makes of parachutes demonstrated by Major Orde Lees is itself proof of the intense earnestness of the Japanese aviators.

The precise number of naval pilots now possessed by Japan is not public property, but one judges that it must be fairly large seeing that all the British instructors have been kept very busy ever since they went to Japan and that a number of their pupils have graduated to the higher kinds of flying such as taking fighting machines off launching platforms from battleships and so forth.

In addition to teaching the Japanese to fly Colonel Sempill's Mission and the other British parties have done excellent work in demonstrating to the Japanese Services and to the Japanese Government the immense superiority of British aircraft material over that of all other nations. Several highly successful and well-known British aircraft designers such as Mr. Smith of Sopwith's, Mr. Volkert of Handley Page's, and Mr. Fletcher, formerly of Martinsyde's and later of the Central Aircraft Company, are in Japan and have all turned out experimental machines built entirely by Japanese labour and of Japanese material.

Of these Mr. Smith's single-seater fighters have put up some very high performances, though one gathers that in the opinion of some English pilots they are a trifle tricky to fly. Even so they do at any rate demonstrate that the Japanese aeronautical engineers can follow drawings and produce exactly what the designer wants them to produce.

In view of these facts an article which appeared recently in an American paper published in Japan may be treated more or less as a joke from the English point of view, though it is possible that some harm may be done by it among the ignorant. The article in question written in the best American aeronautical English sets forth what is alleged to be a statement by English aviators now or recently in Japan to the general effect that the Japanese cannot fly and are never likely to be able to fly, and that apparently their intellect so far as mechanical things are concerned has not progressed since the days of the ox-cart.

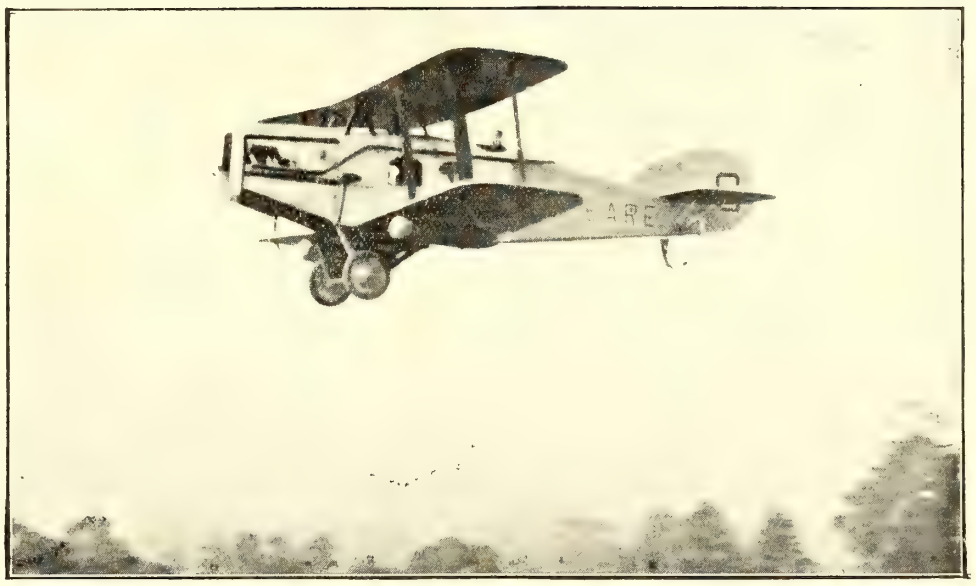
The obvious intention of the article, which one gathers was written by an Italian aviator, is to cause trouble between the Japanese Air Service people and their English instructors, and presumably the ulterior motive is to oust English instructors and designers and aircraft material so as to leave an opening for personnel and goods of other nations. Personally one does not imagine that very much harm will be done by the article beyond causing a little temporary unpleasantness, for though one has one's own political opinions on Japan and its proper place in the world one does at any rate give the upper class Japanese credit for having a very acute intelligence.



A Japanese pilot on a "Sparrowhawk," built by the Gloucestershire Aircraft Co., Ltd., starting from a gun-turret platform on a Japanese warship.

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Major Orde Lees doing a parachute drop from a Japanese Naval Avro, piloted by Major F. Bernard Fowler.

The result in that case must obviously be that they will at once see through the attempt to create trouble. Apart from that all Japanese who have made a study of aircraft must, in the light of the Japanese natural ability for first-class workmanship, recognise at once the difference between the high-class work which is put into English aeroplanes and aero-engines and the product of the average American mechanical-sausage factory which is euphemistically known as a quantity-production shop.

On the whole the article is likely to do more good than harm to English business and to English aviators in Japan as it will probably draw attention to the subject and the explanation of the charges made in the article will in the end merely consolidate the position of the English aeronautical people in Japan.

A CORRECTION.

Australians have always been noted for the keenness of their sight. This quality made itself manifest very promptly in relation to a paragraph which appeared in THE AEROPLANE recently concerning the revival of that excellent Australian paper, *Aircraft*.

In the note on that subject one stated that Mr. E. J. Hart, the editor of *Aircraft*, was one of the first aviators in Australia if not the first and that in the earliest days of aviation he had a very bad crash which laid him out for a considerable period. Hardly had THE AEROPLANE containing this statement appeared than one received correction in this statement from two prominent Australian aviators, Major Eric Harrison the Australian Liaison Officer at the Air Ministry and Mr. Bert Hinkler the famous Australian pilot.

Both pointed out that Mr. Edward J. Hart, the editor of *Aircraft*, who as both of them stated has done most valuable work for Australian aviation, must not be confused with Mr. William E. Hart, the pioneer aviator, who also in his day did excellent work for flying in Australia. As Mr. Bert Hinkler put it: "Billie H. has done no end of spade-work in the years gone by on an old Bristol box-kite, but does not fly now. Edward J. H. is one of the most prominent workers in Australian aviation, as is proved by his perseverance in keeping the paper alive single-handed." So that's that. Apologies and congratulations both to Edward J. and W. E. Hart.—C. G. G.

L'AFFAIRE FOKKER.

Once again the French nation brings criticism upon itself by refusing permission to Mijnheer Fokker to exhibit at the forthcoming French Aero Show which is due to open on December 15th.

It will be remembered that the Fokker exhibited at the Paris Salon last year, over which there was so much frothing and gesticulating, was almost the only real commercial aeroplane exhibited, therefore can the present refusal be an indication that no progress has been made with French commercial aircraft during the past year, and that comparisons with foreign up-to-date aircraft are undesirable?

The above ruling renders the title "Salon Aéronautique Internationale" unnecessary for even the French must grudgingly admit that Great Britain and Italy are not the only countries capable of producing aircraft.

International progress in aviation amongst the big Powers is going to do more for the peace of the world than any amount of petty jealusy and sabre rattling on the part of one nation, or any pettifogging League of Nations, consisting of scores of unknown States, arguing on hygiene or open towns.

It is reported that Mijnheer Fokker will appeal against this decision, and it is hoped that his appeal will meet with success, not because one wants to disagree with the French, but because one does want to see them show that they do not fear competition with other countries, whether they are benevolent neutrals or ex-enemies. After all their comic prohibition is on a par with American prohibition and the reputation of Fokker aircraft will suffer nothing in consequence of it. In fact it is the best possible advertisement for Mr. Fokker, as it indicates that the French manufacturers fear comparison with his products.

THE GERMANO-DANISH ALLIANCE.

The following letter has been received:—

Sir,—In your issue of November 15th I have noted the notice "A German Commercial Move." You will not be surprised to learn that the statements in the daily Press are incorrect. Suffice it here to mention that there exists no "Rofa-Werke."

Will you be good enough to publish the correct names of the two enterprises with which Dr. Ing. Rohrbach is concerned, thus:—Rohrbach Metall-Flugzeugbau G.m.b.H., Berlin S.W.68, Friedrichstr. 203, at the head of which is Dr. Rohrbach himself, and—Rohrbach Metal-Aeroplan Co., A/S, Copenhagen S, Oresundsvej 142, the managing director of which I am.

(Signed) ERIK HILDESHEIM.

THE FIRST GERMAN POST-WAR RACING AEROPLANE.

During October a racing Dornier monoplane was tested at Dübendorf, Switzerland. It has been constructed at Romanshorn, and is an all-metal monoplane of 11 metres span and 6 metres length, is fitted with a 300 h.p. Hispano-Suiza engine and one Lamblin radiator, weighs 810 kilogs. light, and possesses a useful load of 200 kilogs.

This is the first new product of the Swiss factory founded by Herr Dornier at Romanshorn, which is but 11 kiloms. from Friedrichshafen, the original home of Dornier and also of the Zeppelin works. By this small move Herr Dornier has been able to evade the conditions imposed in Germany by the *Commission Aéronautique Interalliée*.

TO AIR-STAMP COLLECTORS.

Those who are interested in air-post stamps should certainly get a little book called "Stamps of the Flying Post" by Mr. W. E. Hughes, published by Alan Turton of 32, Great St. Helen's, E.C.3. The book is called a descriptive catalogue and guide for collectors, and Mr. Turton is frankly a stamp dealer. At the same time the book is a good deal more than a mere catalogue as it is definitely a guide to all such air-post stamps as have been issued up to the present.

Many would-be collectors of air-post stamps even if they have had previous philatelic experience are probably still puzzled as to what constitutes a variety or type in this particular branch of stamp collecting and Mr. Hughes tells them precisely what is what and what is not. Even to those who are not actually stamp collectors this little book has a very distinct historical value for it shows not only an intimate acquaintance with postage stamps but a more than ordinarily good working knowledge of the development of air-mail lines. The price is 1s. net, with presumably 2d. for postage.

MORTGAGES, CHARGES & SATISFACTIONS.

MANCHESTER AVIATION CO. LTD.—Particulars filed of £700 debentures authorised October 6th, 1922, charged on company's property, present and future, including uncalled capital, the amount of the present issue being £500.

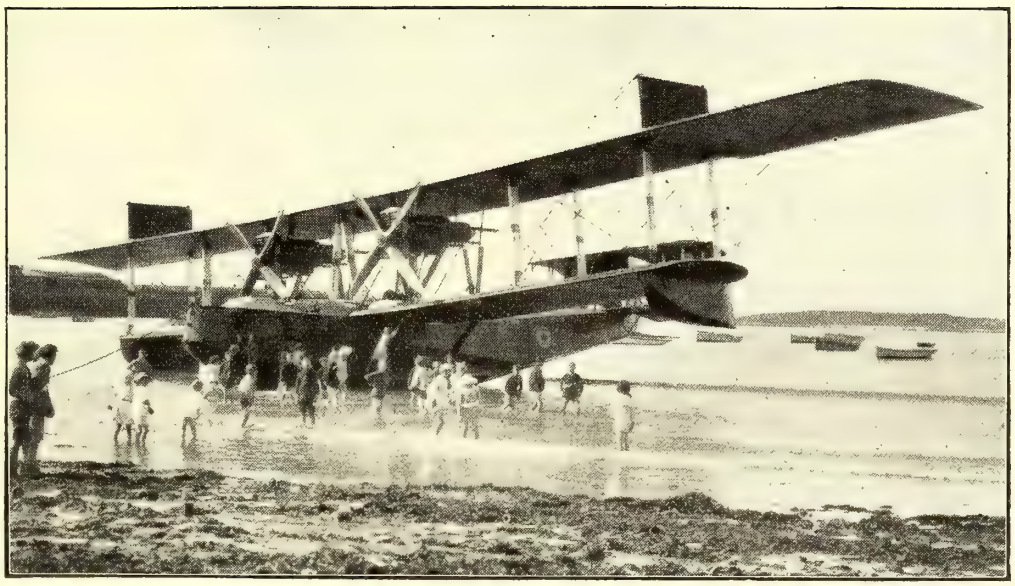
GEORGE ENGLAND (1922) LTD.—Particulars filed of £4,000 debentures authorised October 7th, 1922, charged on the company's undertaking and property, present and future, including uncalled capital, the amount of the present issue being £3,000.

SHORT BROS.

(ROCHESTER & BEDFORD), LTD.

SEAPLANE WORKS, ROCHESTER, KENT.

FIRST IN 1911
STILL AHEAD IN 1922.



The "CROMARTY," the largest Seaplane afloat.—*Evening News, 30-8-22.*

1911

The First British Twin-Float Seaplane.

1920

The First British All-Metal Aeroplane.

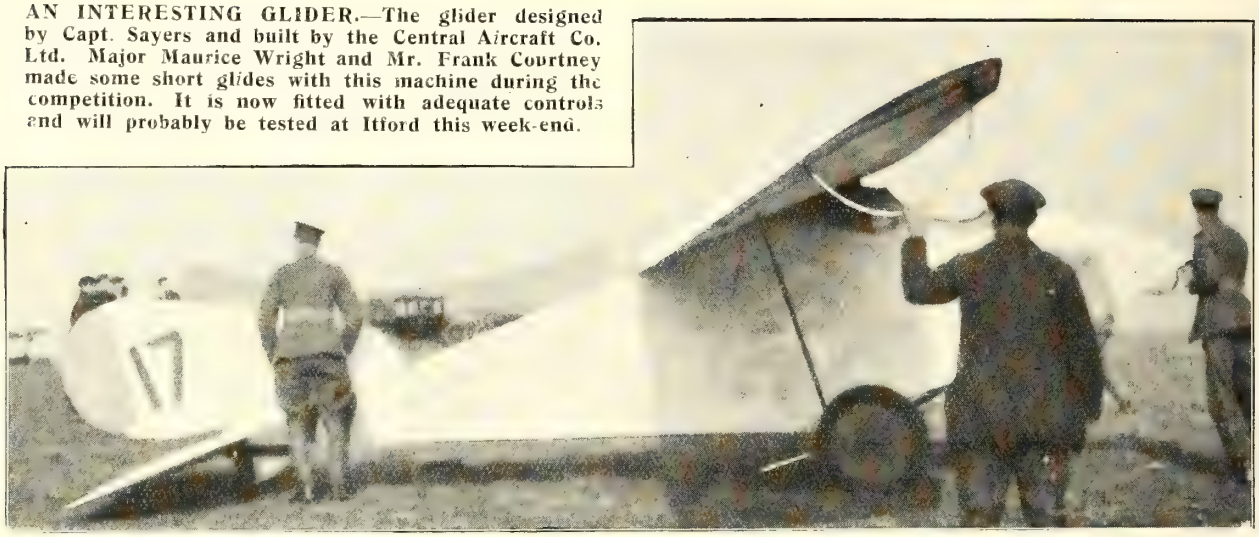
1922

The Largest British Flying-Boat to be successfully flown.

London Office:

Phone: Regent 278. WHITEHALL HOUSE, 29-30, CHARING CROSS, S.W.1. *Grams:* Tested, Phone, London.

GLIDING TIME.



AN INTERESTING GLIDER.—The glider designed by Capt. Sayers and built by the Central Aircraft Co. Ltd. Major Maurice Wright and Mr. Frank Courtney made some short glides with this machine during the competition. It is now fitted with adequate controls and will probably be tested at Itford this week-end.

"INCAUTIOUS CHARLES."

It was in Anno Domini Eighteen and Twenty-two
Or thereabouts, there lived a youth—a daring sportsman—who
Decided that with Mother Earth he really was too bored,
So he must learn how swallows dived and how the eagle soared.

He made himself a strange device to aid him in his flight,
Of Hope and tintacks chiefly formed ('twas goodly in his sight!);
"Behold me skim through ether pure the while my wings I flap"
"Be cautious, Charles!" relations cried—he did not care a rap.

He nimbly scaled the old church tower, dislodging mice and rats,
"And like the tower *his* belfry is inhabited by bats,"
They scoffed. He donned his costume gay and with an upward flash—
"He flies!" "He won't!" "He glides!" "He don't!" Ugh! 'twas a horrid crash.

The multitude with doleful mien went home to tea and toast:
Incautious Charles tapped Heaven's gate—St. Peter was his host.

* * *

It was in Anno Domini Nineteen and Twenty-two
Our flying men once more upheld Charles's unstable view—
"Magnetos, aye, and cylinders are most inconstant elves
And we will have no more of them, we'll do the job ourselves!

The wizard, Mynheer Fokker, says he really thinks we ought,
If we possess the gliding art, to have no end of sport;
We'll chase the baby breezes and this pastime we'll prolong
Until brought down by 'Crack of Doom'" (more like the dinner-gong!).

Good luck to you, my sporting friends, who rule the airy wave;
Long may you woo the zephyrs soft, but I am not so brave,
And when I fly I do not like to leave too much to chance—
A hundred horse-power engine doth my pleasure much enhance.

And ere I close my little rhyme let me beseech of you
Incautious Charles's fate recall in Eighteen Twenty-two.

F. E. B.

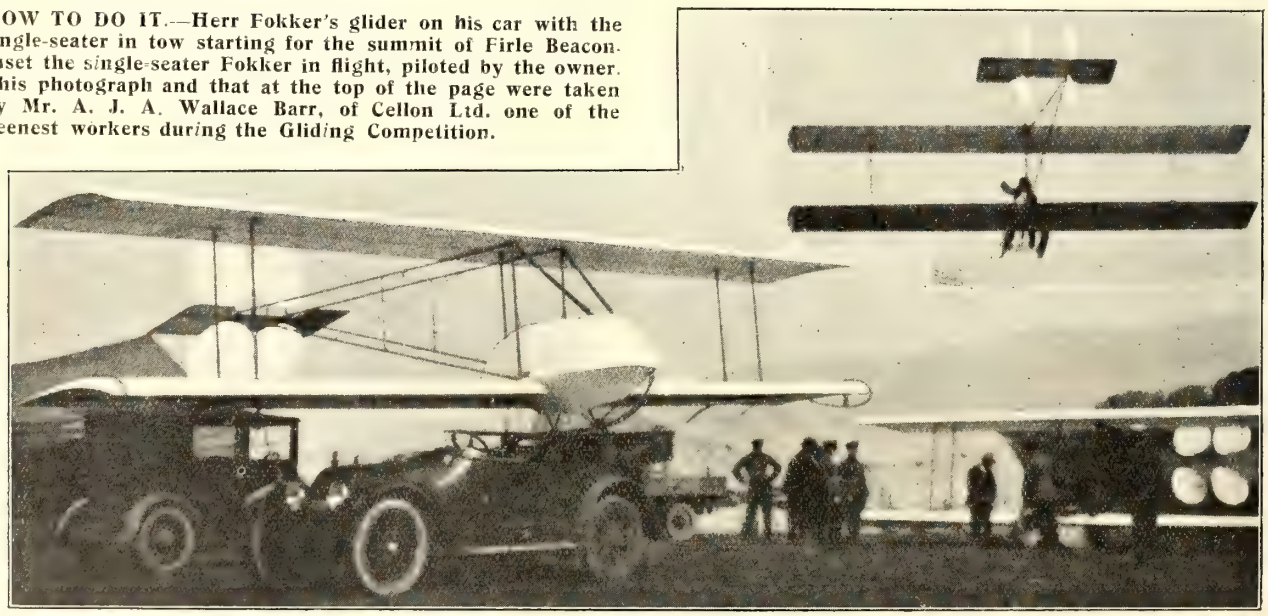
A SMALL LAMENT.

Bill Bludsum was a journalist
Of somewhat dud renown;
A hot-air merchant eke was he
Of Fleet Street—London town.

He wrote on aviation news
To millions—once a week—
And some there were who flocked to read
Or hear the marvel speak.

He told of 'planes, and 'buses:
Of "Birdmen," brave and strong,
Of 'dromes, and even airplanes,
That "droned" or "sped" along.

And of that paper's millions
Were some who once had flown;



HOW TO DO IT.—Herr Fokker's glider on his car with the single-seater in tow starting for the summit of Firle Beacon. Inset the single-seater Fokker in flight, piloted by the owner. This photograph and that at the top of the page were taken by Mr. A. J. A. Wallace Barr, of Cellon Ltd. one of the keenest workers during the Gliding Competition.

F-ADAY F-
F-ADC
F-
F-
F-
F-A
F-A
F-A
F-FA
F-FHI
F-UHM
F-YHM
F-ADAI
F-ADAU
F-ADBM
F-ADBP

C.M.A. Air Lines is the British title of the Compagnie des Messageries Aériennes, whose head office is at 2, Rue Galilee, Paris. The Company was originally founded early in 1919, by M. Louis Breguet, for the transport of goods from Paris to Lille, the ground communications having been so much disturbed by the European War. This line, which was the first commercial aviation service in the world, was soon extended to Brussels and the line from Paris to Brussels has been maintained by the Company ever since.

In September, 1919, a service between London and Paris was inaugurated in conjunction with Handley Page Transport, Ltd. This was originally operated three times a week each way, but later, when the two Companies separated, a daily service was commenced, which has now been extended to a thrice daily service.

By an arrangement with the Compagnie Générale Trans-atlantique, a service is run to connect with the arrival and departure of this Company's sailings between Le Havre and New York. This is the first occasion on which a large shipping company has recognised the necessity of using commercial aviation in its transport policy.

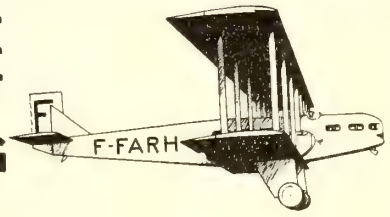
The Company's service has now reduced the time of transit between London and Paris to two and a-half hours; between London and Le Touquet to one and a-quarter hours; between Paris and Le Touquet to one hours and between Brussels and Amsterdam to two hours; between Paris and Brussels to two hours.

A line has been inaugurated at Paris and Lyons and connecting to Marseilles, calling at Paris and Lyons and connecting with the Steamship Lines to India and the East. This brings Marseilles within eight hours' reach of London and Lyons within six and a-half hours.

The C.M.A. Passenger Service is maintained by twin tractor Farman Goliath Biplanes, fitted with two 300-h.p. Renault Engines and with a seating capacity for 12 passengers, pilot and mechanic. This machine has a length of 49 ft. 6 in. and a height of span of 92 ft., a length of 49 ft. 6 in. and a height of 16 ft. Its cruising speed is 93 m.p.h. The freight, mail and newspaper services utilise the smaller type of single-engined Spad and Breguet.

The Compagnie des Messageries Aériennes is an association of aircraft constructors for the study and application of Aerial Transport, and among its Board of Directors appear the well-known names of Messrs. Bleriot, Breguet, Caudron, Farman, Morane, Luquet de St. Germain and Renault.—*Extract from R.A.F. Year Book.*

F-ADAE
F-ADAF
F-ADAG
F-ADBI
F-ACMA
F-ACMB
F-ACMC
F-ACME
F-ACMF
F-CMG
F-CMI
AB
AF
F-CMAK
F-CMAJ



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AIR LINES

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London, S.W.1.

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LE TOUQUET	BRUSSELS
ROTTERDAM	AMSTERDAM
LYONS	GENEVA
MARSEILLES	LE HAVRE
STRASBOURG	PRAGUE
WARSAW	VIENNA
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BUKAREST	CONSTANTINOPLE
TOULOUSE	BARCELONA
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Telephones—GERRARD 2312.
REGENT 4728.

It made them weep to see their work
In such abasement shown.
But yet he still continues
To thrill the public eye—
With visions of our aircraft
That almost are a lie.
But when one deals in millions
It doesn't really matter,
If what you write is purely rot
And journalistic chatter.

C. E.

A PROGRESS REPORT.

The following report has been received :—

Princess Alice Hospital, Eastbourne.

Sir,—I have the honour to report that at the hour of two by the clock one of the inmates of the above-named hospital was seen to grasp firmly one in each hand certain implements to wit crutches, and with the assistance of his keeper (submitted, Sir, that she is a very pretty lady and Irish too) holding him in a vertical position by the scruff of his dressing-gown he did stagger across the ward and back to his starting-point.

The following points were observed in connection with this operation :—

(a) Directional control : Fair, a slight tendency to yaw was plainly marked.
(b) Vertical stability : Practically non-existent.
(c) Speed : Very poor, it is doubtful whether patient had sufficient velocity to catch a cold.
(d) Total distance covered : Six yards.
(e) Make of Patient : An England.
(f) Type : Eric Gordon.

Submitted that until patient has had abundant practice and shows considerable improvement in directional control and vertical stability his pedestrian's certificate should be withheld. Submitted that strong representations be made to the local authorities in charge that this patient be given further instruction in the use of his controls.

I have the honour to be your obedient Servant,

(Signed) "Keen Observer."

Nov. 18th, 1922.

COMMERCIAL AERONAUTICS.

The London Terminal Aerodrome.

AIR LINE ARRIVALS AND DEPARTURES.

ANALYSIS OF FIGURES.

For week ending Nov. 26th.

LONDON—PARIS :

Handley Page Transport, Ltd., machines 10*, passengers 69. C.M.A. Air Lines, machines 13†, passengers 13. Cie. Grands Express Aeriens, machines 4, passengers. 9. Total, machines, 27, passengers 91.

LONDON—COLOGNE :

Instone Air Line, Ltd., machines 8*, passengers 22.

MANCHESTER—LONDON—AMSTERDAM :

Daimler Airway, machines 18, passengers, Manchester-London, 12, London-Amsterdam 14.

LONDON—ROTTERDAM :

K.L.M., machines 12*, passengers 12.

SPECIAL MACHINES : 0.

Total number of trips by British machines : 36, carrying 117 passengers.

Total number of trips by foreign machines : 29, carrying 34 passengers.

Trips per day.—Monday, 8; Tuesday, 6; Wednesday, 12; Thursday, 15; Friday, 6; Saturday, 16; Sunday, 2.

STATISTICS.

Machines, 65; Passengers, 151; Crews, 121; Total Personnel, 272.

Corresponding week last year :—

Machines, 44; Passengers, 87; Crews, 71; Total Personnel, 158.

Corresponding week, 1920 :—

Machines, 47; Passengers, 85; Crews, 57; Total Personnel, 142.

* These machines also carry loads of freight.

† Some machines are freighters only.

NOTES OF THE WEEK.

The weather during the past week has been a considerable improvement on that of the previous week and though there was a certain amount of mist the thick fogs of the previous week were missing. Even on Tuesday, when in London it was as dark as night all day, all routes except that to Cologne were in operation.

The Instone Air Line are now running the D.H.18s right through non-stop to Cologne and the D.H.34s land at Tirlemont, which is about 25 miles to the East of Brussels, for petrol.

A Welcome Restoration.

The D.H.18 G-EAWW has been thoroughly overhauled by the De Havilland Aircraft Company. The machine had done a large amount of service in the past year in all sorts and conditions of weather, and was returned for overhaul in a somewhat dilapidated condition. De Havilland's, as is usual with that firm, made a very fine job of the overhaul, and the machine is now in a condition equal to new.

On Saturday morning this machine, flown by Mr. Jones, started for London from Cologne some considerable time after a D.H.34. The latter landed at Tirlemont with the result that the 18 which came through without a stop reached Croydon some minutes before the 34. The 18 had its cabin filled with freight of various sorts.

Ecclesiastical Aviation.

The Bishop of Bangor who is in his 78th year was one of the passengers who travelled to Cologne by air on Saturday. He was going over to see some friends still in occupation there and finds air transport less fatiguing than other methods.

Ogilvie and Partners Ltd have for the past few weeks been acting as consulting engineers to the Instone Air Line as well as to Handley Page Transport, so that Col. Bristow is busier than ever. Mr. Griffith, who is the resident at the aerodrome on behalf of Ogilvie and Partners, tells one that the Leitner-Watts metal airscrew which has been in use on a D.H.18 has now completed 100 hours' flying. One blade was found to have varied from truth by just over a minute, and the other two were only a few seconds out.

All will regret to hear that Col. Bristow himself has been laid up for some time with acute sciatica. His early return to technical activities will be heartily welcomed.

Rockets.

On Saturday morning the Handley Page W8b G.EBBI went off with a big load of goods and passengers and made its usual rapid take-off and quick climb.

As the weather was somewhat foggy a number of rockets were fired up during the day whenever a machine could be heard either by the noise of its engine or on the wireless. Mr. Robinson on a D.H.34 got right over to Wimbledon before the wireless people "pulled him in."

"Without Thread."

During the recent fogs and mist the wireless has proved itself once again to be absolutely invaluable the best example being that of a Handley Page on Monday afternoon which was brought into the aerodrome from Paris in visibility of about fifty yards. The wireless on the Handley Pages has been exceptionally good lately and speech from a machine over Berck could be heard plainly in the loud-speaking horn in the wireless hut on Saturday morning.

Another striking wireless feat on the same day was the reception of messages from Mr. Hinchliffe who was flying a D.H.34 to Amsterdam. He was in telephonic communication with Croydon right up to the time when he throttled down his engine to land at Amsterdam.

Mr. Herne came down from Manchester on Saturday morning, but owing to the fog round London he decided to land at Stag Lane. This wastes no time, as the pilot is told by wireless the state of weather in London when he is yet afar and he can then decide by wireless whether he will land at Stag Lane or Croydon. A car is dispatched at once to Stag Lane if necessary and is there almost as soon as the machine. Now that the Edgware Road has been almost entirely relaid the journey by car to and from Stag Lane is faster and more comfortable than that on any main road out of London.

A D.H.34 on Friday flew from Manchester to Croydon in 83 minutes, a most remarkable performance.

The famous G-EBBS has been at Stag Lane during the past week, where she has been fitted with an adjustable tail-plane.

A.D.C. Busy.

On Monday for the Aircraft Disposal Company Mr. Perry was testing a Bristol "Fighter" and later on he took up a couple of Sopwith "Snipes." The following day he was out on another Bristol "Fighter." He gave this machine a further test on Wednesday and soon afterwards he was out



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To the numerous improvements which have continually been introduced since the creation of the DH9 we have now added the following:

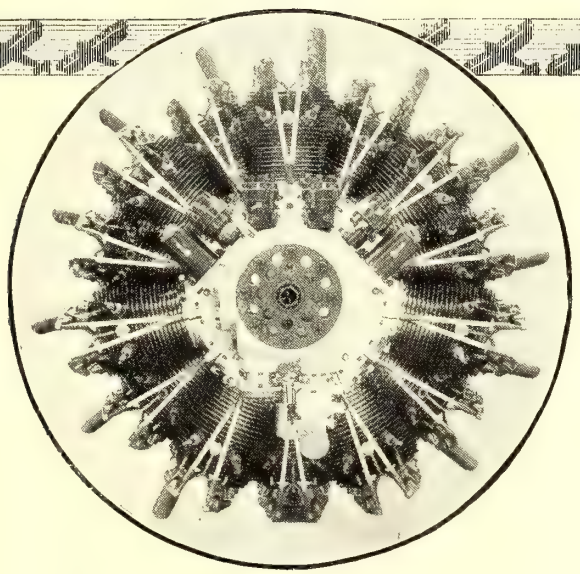
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The "Jaguar" gives 350 h.p. at 1,600 revolutions. It is the most compact and complete unit for its horse power ever produced. Outside diameter is only 43". Low petrol and oil consumption and perfect cooling.

LATEST MODELS:
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150 h.p. 7 cyl. Armstrong Siddeley Radial.
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Telephone: Gerrard 6349. Tele.: "Armsidco, Piccy, London."

Aircraft Engines ARMSTRONG SIDDELEY

on yet another. On Thursday both Mr. Perry and Mr. Piercey left on the two last-named machines for Dublin.

Capt. Rex Stocken who has been in Brussels during the week returned thence on the D.H.9a with a Rolls-Royce engine and side radiators which Mr. Perry entered for the King's Cup Race.

AVROS AT IT.

Mr. Shaw was up doing wireless tests on his Renault Avro during the week and on Friday and Saturday Mr. Muir was busy on the Surrey Flying Service Avro taking up joy-riders.

On Saturday morning Maj. Petre (the Monk) was up on an Aero Club Avro with a passenger. He intended to go to Portsmouth but the weather was too thick. Later on he was up again in the same machine, G-EAXY, but the weather was still very thick to the West.

"THE MOVING FINGER WRITES—"

Mr. Brenard, who is so active nowadays in keeping the daily press informed of the daily happenings at the aerodrome, has now got an office on the aerodrome complete with telephones, etc. He is desirous of having an extension of the telephone put through to his house, which is about half-a-mile away. The Post Office charge so much per furlong for an extension so Mr. Brenard says that he hopes to have the distance measured for him by the Air Ministry official who measures the distance between the various towns between which air lines operate. As the mileage question enters into the allocation of the subsidy Mr. Brenard thinks he will get his extension cheaper.

Major Wilfred Blake who it may be remembered was one of the passengers on Capt. MacMillan's flight to India visited the aerodrome on Friday and spoke of being taken on further flights.

Commander Deacon who has for so long been in charge of Lympne aerodrome has now been posted to Croydon, and Capt. Glasson has taken over from him at Lympne.—G. D.

Lichfield.

The Berkshire Aviation Co. Ltd. finished their visit here on Wednesday after a very successful ten days. Aviation was the principal topic in the city during their stay and most of the local celebrities from the Mayor and Sheriff downwards went for a flight upwards.

On November 11th, Messrs. Woods, Taylor and Holmes went up in "K X." to 8,000 feet and at 11.00 hrs. shut off the engine and glided down for two minutes in silence. The firm were specially clad in their Antarctic outfit for this flight!

Sutton Coldfield.

The B.A. Co. arrived here on Thursday from Lichfield : the flight of eight miles occupying 5½ minutes.

Business here has been poor owing to an advertising contretemps which is being pursued in the courts with the Berkshire Co. as plaintiffs.

Mr. Taylor the firm's ground engineer is, unfortunately, going into hospital on Wednesday for an operation and his place will be taken temporarily by Mr. R. F. Little. The Company is due at Basingstoke on Tuesday, for another period of ten days.

The Berkshire Aviation Tour.

Mr. F. G. M. Sparks who for some time past was the moving spirit of the Welsh Aviation Co. has now joined Mr. Fred Holmes of the Berkshire Aviation Tour as pilot. It will be remembered that at the first Croydon air-race meeting Mr. Sparks won three out of the four events by sheer good piloting and by the high pitch to which he had tuned his aged Renault-engined Avro. Together he and Mr. Holmes should make a very strong combination.

"DON'T LET THEM SCRAP THE BRITISH NAVY."

It is not often that one is able to think of economy and the British Navy in the same breath, and so it is all the more remarkable to learn that Lieut. L. M. Robinson, R.N., has taken his Royal Aero Club ticket at the De Havilland Flying School after only 1 hour 35 minutes' training. As the D.H. School charge £10 per hour flying time Mr. Robinson has only cost himself about £15.

ROYAL AERO CLUB NOTES.

The Racing Committee of the Royal Aero Club has decided to recommend to the F.A.I. that for the next Schneider Cup contest the seaworthiness test, consisting of taxying over two distances of half a mile each, should precede the flotation test of six hours, and that for the speed test the competitors should all be started at the same time. The question as to where the race should be held was considered and deferred.

Lieut.-Col. M. O. Darby of the Aircraft Disposals Co. Ltd. has been co-opted to the Committee to fill the vacancy caused by the death of Lord Northcliffe. This is a useful move, seeing that Lord Northcliffe never did anything for the Royal Aero Club whereas Col. Darby is the embodiment of activity and initiative in all aeronautical affairs.

The Committee of the Royal Aero Club has decided to recognise the Society of Model Aeronautical Engineers as the body to control model aeroplane competitions, the appointment to be for one year, and to be reconsidered at the end of that period. Why? But how nice!

The following Aviators' Certificates have been granted :—7932, Gilbert Edward Nicholetts, August 19th, 1922; 7933, Richard Claude Hancock, September 28th, 1922; 7934, George Carr Rayden, June 28th, 1918; 7935, Nils Nilsson (Swedish subject), August 25th, 1922; 7936, Lieut. Leonard Mansfield Robinson, R.N., October 31st, 1922.

REAL INTERNATIONAL COMPETITIONS.

At the Conference of the F.A.I. held in Rome October 8th-13th, 1922, it was decided that a Competitor of the Nationality of a Country not represented on the F.A.I. may be granted a Competitor's licence by the Country represented on the F.A.I. holding the Competition. The licence is only to be valid in the Country in which the licence is issued

THE SPEED RECORD COURSE.

The Conference of the F.A.I. in Rome decided that after April 1st, 1923, all speed records must be made over a straight line course of 3 kilometres instead of 1 kilometre as at present.

AN OPPORTUNITY.

A flying officer recently invalided from the R.A.F. wants to sell full mess kit, one service tunic and one pair of slacks, all of which garments have only been worn once or twice. His chest measurement is between 35 in. and 36 in., and height 5 ft. 11 in. Perhaps somebody built to the same specification would like to do a deal in these days of expensive tailoring. Anybody who would care to do so is invited to write to "M. K.," c/o THE AEROPLANE.

This Hall-Mark of Thoroughness  I.C.S.

Stamps the splendid courses in

AERONAUTICAL ENGINEERING

Now ready for those who require an all-round knowledge of

AVIATION IN ALL ITS MODERN PHASES.

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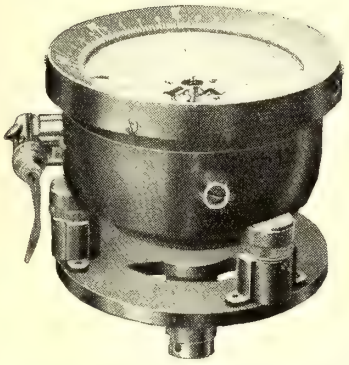
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RIGGING & COURSES FOR PILOTS & GROUND ENGINEERS.

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APERIODIC COMPASS



As an aid to accurate air navigation the Campbell Bennett Aperiodic Compass has no equal. Having a skeleton card it is absolutely dead beat, and enables an instant reading to be taken without having to wait for the card to come to rest.

The Campbell Bennett Aperiodic Compass is fitted on all the Daimler Hire Machines on the London-Paris Airway.

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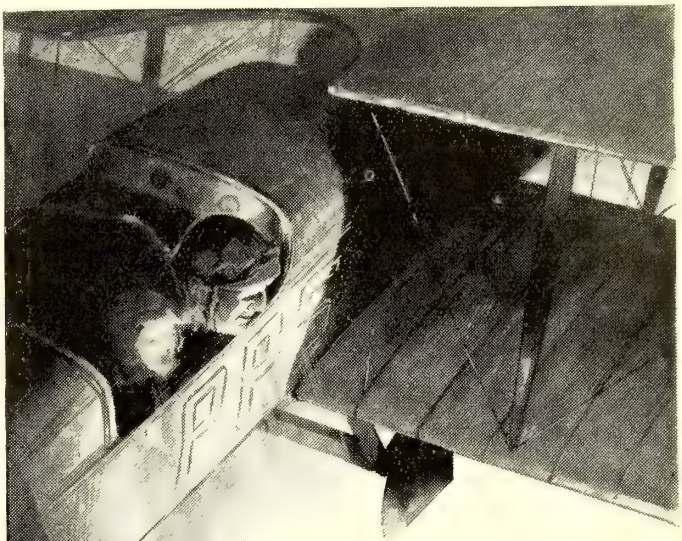
Post 9/9 free.

This book deals not only with the principles of the subject but with the constructional details of direction-finding installations. It describes the principles of Direction and Position Finding in this country in such a way that the subject may be grasped easily by Engineers tackling this field of wireless work for the first time.

CONTENTS:

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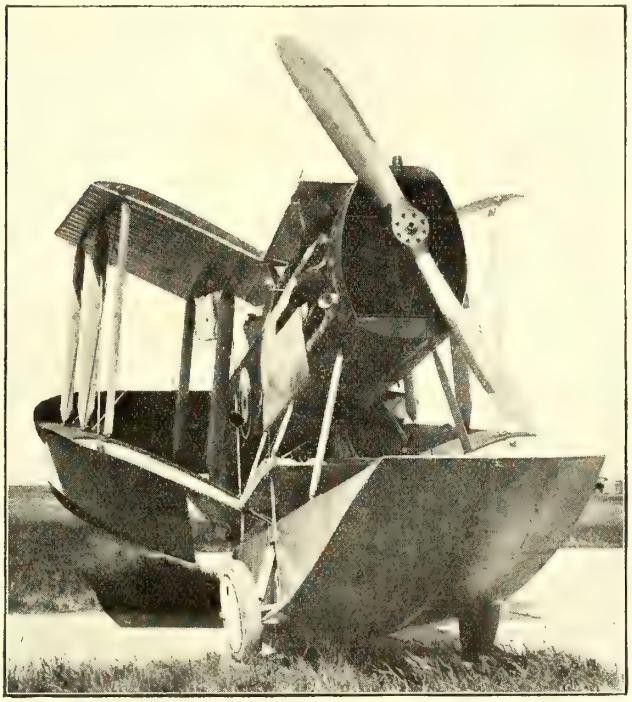
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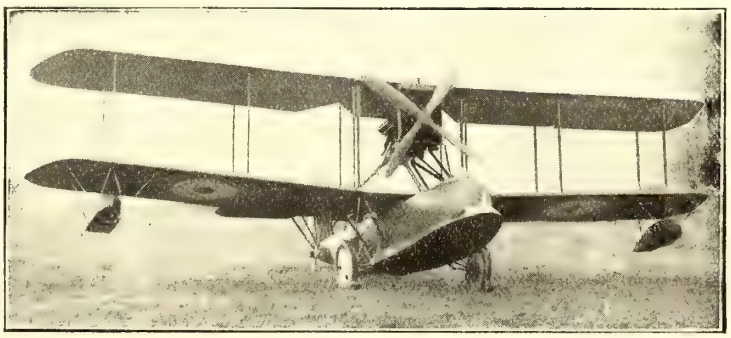


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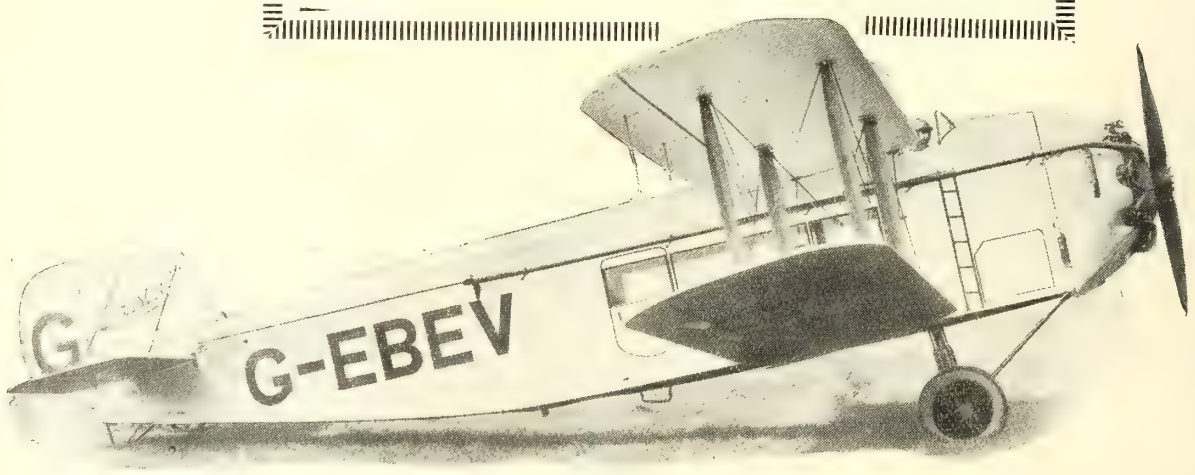
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WEDNESDAY, DEC. 6, 1922.

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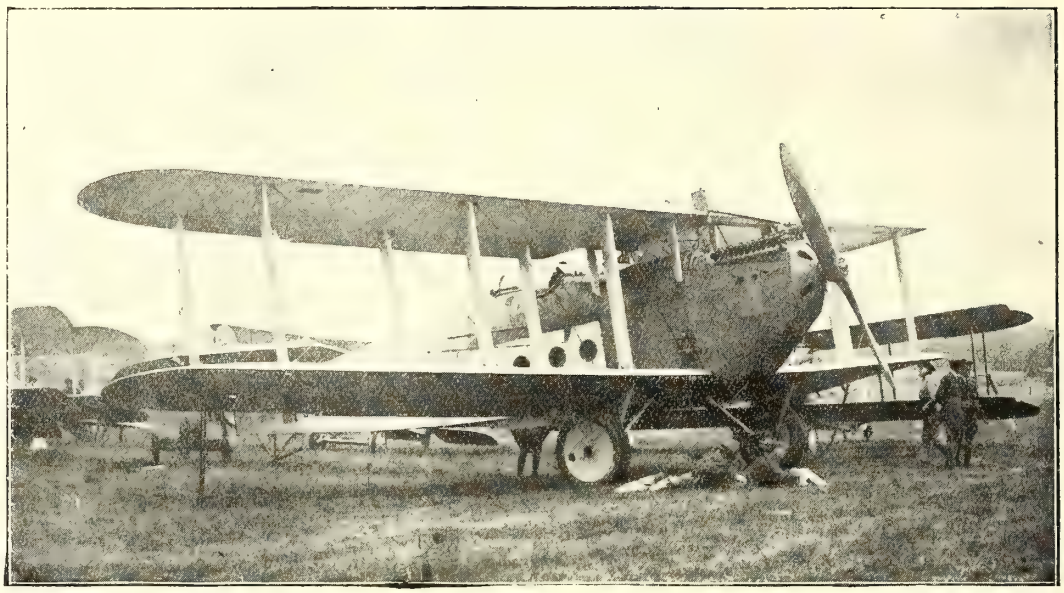
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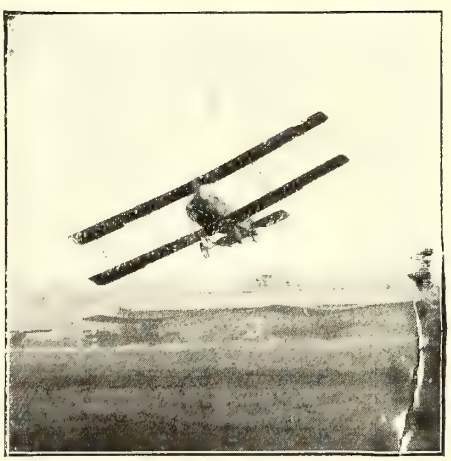


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ON PASSENGERS AND PAPERS.

Before very long the Department of Civil Aviation is likely to be called upon to decide definitely whether the air transport of passengers is or is not more important than the air transport of certain classes of goods. And one imagines that the officials concerned will have some difficulty in coming to a decision which will prove right in the long run.

So far as the air lines are concerned there is no doubt that they would at the moment prefer passengers to goods, at any rate so long as they can get £6 (plus the subsidy money) for taking one passenger to Paris when the railway companies will take him there *and back* for £5 or so. You see, if you reckon the passenger as weighing 150 lbs. and his luggage allowance at 30 lbs. the air line is receiving 120 shillings for carrying 180 lbs weight. Which is equal to 8d. per lb.—if one's mathematics are not at fault. And there are very few classes of goods which would stand a charge of 8d. per lb. for the journey from London to Paris, or the other way round.

Now when all the three air lines, Daimler, Handley Page and Instone, were running in what was then called "cut-throat competition" with one another the question was not so acute, because no one line was full up with passengers except on occasional days and consequently not only was there room for goods but machines left Croydon at all sorts of hours and the sender of goods could please himself more or less as to when he sent them. And if the amount of goods which he wanted to send was big enough he could arrange for a special machine to take them, for that machine was then entitled to subsidy money just as much as a passenger machine.

But now that each line has a monopoly of subsidy money on its own route the people who want to use that line are completely at its mercy until such time as improvements in aeroplanes and engines make it possible to run air lines as commercial propositions without subsidies. Before the monopoly came into force anybody in a hurry could choose whether to go to Paris by the Daimler Airway at dawn or by the other lines at various later hours. Now everybody must go by the Handley Page machine at whatever hour it chooses to start, or by a French machine at its particular hour.

The Advantage of the Small Unit.

The real advantage of air travel in the future will be that instead of being compelled as one is now by a railway company to catch a certain train one will merely go down to the aerodrome and catch the next aeroplane, just as one catches the next 'bus or the next tube train. For instead of one huge unit such as a train or ship having to be filled before it can start there will be a number of small units which fill quickly and start at frequent intervals. But the monopoly system at present works in exactly the opposite direction. It only gives the passengers the chance of one vehicle per day whereas the railway companies give him the choice of at least six trains per day.

There would be more sense in the subsidy if it were given specially in order to make it possible to run six aeroplanes a day so as to give the travelling public a choice of convenient hours, but one fails to see why a would-be air passenger should pay double the railway fare, take a certain amount of extra bodily risk, take considerably more risk of not arriving to schedule time and then after all that to be tied down to travel by one machine per day or not go at all.

Moreover if one studies the times at which the one machine per day arrives in Paris one fails to see any particular advantage to be gained by a business man using it. Since the monopoly came into force and the early morning machines were stopped the time of arrival in Paris of goods sent by those machines (with special motor connection at Le Bourgêt) have varied all the way between 10.30 and 16.23 hours. The ordinary 09.15 train from London gets passengers into Paris at 16.30 and to catch midday train connections to the South of France or Italy or Switzerland it is necessary to arrive not later than 10.30. If those are missed then any time up to 17.00 or 18.00 hours is quite soon enough.

Who Uses Air Lines?

Naturally the question arises as to whether the air lines to Paris have in fact ever been used to any extent worth considering by people who matter. We read a lot about popular actresses, jockeys, M.P.s., criminals and other people who are "in the limelight" travelling by air, but it is very doubtful whether British Industry has ever been helped to expand—even to the extent of 5% on the amount spent in subsidies—by passengers to or from Paris by air.

Up to the latter part of May 1922 when all three lines were running, over 80% of the passengers on the London-Paris route were Americans and one does not believe that they were promoting English trade. Even during the busiest part of the year over 60% of the passengers were foreigners. In fact one is firmly convinced that of the total number of passengers carried fully 75% have been pure joy-riders, and of the rest the majority have been good kind earnest people who have thought it their duty to support aviation.

One would like to hear from any of the air lines if they can produce any evidence to show that any considerable proportion of their passengers have used their lines as an essential aid to business. If they can produce such evidence none will be more delighted to blazon the fact abroad than will THE AEROPLANE. At the present moment one is convinced that hitherto the subsidy system has simply resulted in the expenditure of the British tax-payer's hard-earned money in providing glorified joy-rides for foreigners.

The Problem.

It is of course a fact that we have acquired a certain amount of useful knowledge about how to run air lines and what pilots, aeroplanes, and engines will stand. And as practically all the passengers who have been killed or injured hitherto on the London-Paris route have been foreigners, and remarkably few of them let it be said in fairness, we have the consolation that we are not running these experimental air lines at the cost of British lives and limbs. But one doubts whether those advantages have been worth the money spent in subsidies.

Probably a quarter of the amount spent on machines, engines, and flying tests would have taught us a lot more about the purely mechanical side of air-line work. But against this we must in justice write off the value of the publicity which air transport has received through the aforementioned lime-lighters and the paragraphs which they have produced in the press. The Great British Public does not yet believe that air transport is anything more than a "stunt," but it is at any rate aware that such things as air-lines exist. Which is one step in the right direction albeit a trifle expensive at the rate of half-a-million pounds a year, even if one includes the value of the Meteorological Department for which that vote provides.

That being more or less so it is worth while to consider whether the subsidy would not be better employed in encouraging another form of air transport, namely the delivery of English newspapers to Continental readers as soon as is possible after publication. Those concerned with our foreign policy generally feel strongly that no function of flying can be more important than that of placing the leading English journals at the earliest possible moment in the hands of the intelligent classes abroad who are interested in international affairs. It is not the English visitor in Paris or in other foreign cities who buys the English papers, so much as the native politician, journalist, merchant and so forth. And it is for the good of our foreign policy and of our relations with foreign nations that our newspapers should be delivered without delay.

A Useful Lesson.

During the past summer, in spite of the winter weather, our newspapers were delivered with remarkable despatch on the Continent. The De Havilland Company, unsubsidised, ran a service from Lympne to Ostende which hardly missed a day. The papers it carried went to Brussels and thence to Amsterdam Germany and Scandinavia, gaining a day at least on those sent by boat. The service has been discontinued presumably because after deducting the number of papers absorbed by British holiday-makers in Belgium the

balance is not enough to keep the machines going without a subsidy. But when Central European trade is again restored the position will be reversed.

In April 1922 a big firm of London news-agents—the biggest distributers of English papers in France—arranged to send consignments amounting to 300 lbs. weight of daily newspapers by air. These papers left the Croydon aerodrome at dawn every day and almost every morning they were on sale in the boulevarde kiosks in Paris from the earliest business hours.

The Proof of the Pudding.

From the beginning of May the demand increased rapidly and by the end of June the daily load, which was then being carried by the Instone Line, had risen to 1,200 lbs. per day. The early arrival of the papers made it possible for the agents in Paris to send off consignments by early trains to watering places such as Deauville, Trouville and St. Malo, and to catch midday trains to the South of France and Italy.

At the end of July the Daimler Airway took over the transport of these papers and their service became so efficient that the papers were being sold in Paris by 08.00 or 08.30 hrs. This excellent service so popularised English papers that by the end of September and the beginning of October a load up to 1,800 lbs. was being carried every morning—which it is evident is equal to 10 passengers with their luggage and so demands a big fast machine and cannot be handled with D.H.9s unless two or three are used at a time. Surely nothing could provide better proof than that of the popularity of the newspaper service and the usefulness of getting English papers to the Continent.

The monopoly came into force at the beginning of October, but the Daimler Airway maintained the early morning service till their notice to the newspaper agency had expired. The result was that although the weather conditions at the beginning of October were very bad indeed, yet in the first 14 days of the month the English machines got through with only one failure. And during that period on eight days French machines which were carrying papers for a French newspaper agency failed to get through and the papers had to go by boat and rail.

Changed Conditions.

Then, owing to the conditions of the subsidy-monopoly system, Handley Page Transport Ltd. were unable to put on an extra aeroplane in the early morning specially for newspaper traffic. No blame attaches to Handley Page Transport Ltd. for the work simply could not be done at the price the newspapers could afford to pay unless a fresh subsidy were forthcoming. And so the service would have had to stop but that the newspaper agents were able to fix up an arrangement with a French air-line, the Compagnie Messageries Aériennes.

As the Department of Civil Aviation at the Air Ministry was unable to find any more money with which to subsidise the newspaper machines the French Department of Aviation was approached. M. Laurent d'Eynac, the French Air Minister, an excellent business man and a fervent of aviation, reviewed the circumstances and arranged officially that the Compagnie Messageries Aériennes should run a special aeroplane from Lympne to Paris every day on purpose to carry the English newspapers. And this machine draws the French subsidy for doing so.

By starting from Lympne there is a double advantage. In the first place the morning fogs at Croydon and through Kent are avoided, and if there happens to be a fog at Lympne though it is clear at Boulogne a pilot is justified in starting, safe in the knowledge that he will be out of the fog in a few minutes. In the second place as the papers go down to Lympne in the dark of the early morning they are there ready for the machine to leave at the first streak of daylight, so that it always has a start of at least 40 minutes over any machine going from Croydon.

A Curious Anomaly.

And so we arrive at the curious anomaly of the French Government paying a special subsidy to a French Air Line to carry English newspapers to France. This strange state of affairs reflects great credit on the foresight of the French Department of Aviation, and on the C.M.A. which was ready at once to start its machines from Lympne instead of Croydon. And it is not discreditable to our own air line, H.P.T. Ltd., for one cannot expect that line to run a special newspaper machine for fun, at any rate so long as it can fill its one mid-morning machine with passengers. But it is not satisfactory, if one takes the long view, that we—the World's Carriers as we used to call ourselves—should be dependant on a foreign line for the transport of our own newspapers.

Impossible Competition.

The impossibility of a British firm competing with a French firm can be seen when the French subsidy figures are quoted.

The French air-lines get a subsidy of 2.69 francs per kilogramme of goods carried = 10.8 pence per kilo. = 5d. per lb. And in addition they get 4,400 francs subsidy per trip, full or empty. And in addition they get whatever price the newspapers are willing to pay per lb. And in addition they get 100% subsidy for each passenger carried.

That is to say a French machine gets £135 subsidy per double trip out and home + £33 subsidy on goods (*id est* 1,800 lbs. of papers carried one way only) + £21 paid by the papers on 1,800 lbs. at 3d. per lb. = £189 for the out-and-home trip, running empty one way and without any passengers. And that is reckoning francs at the rate of exchange to-day instead of at their purchasing value in France.

Against that an English machine would get £25 subsidy (£15,000 for 600 flights in the year) + £21 from the papers = £46 for the out-and-home trip.

A single outward trip might be done at the price, or even a double journey out-and-home if a full load could be secured for the return journey, but there is practically no freight from London to Paris by an English line at any reasonable price, not even printed matter of the kind which cannot be produced in England, for the French lines covered by their huge subsidy can carry freight for nothing and still make a profit if run as efficiently as an English line.

Whose is the Blame?

It is difficult to place the blame for a state of affairs so obviously wrong. There is no doubt that all three British air lines were dissatisfied with the old conditions when they were all on the Paris-London route. The new monopoly system was very largely their own scheme and General Brancker as Director of Civil Aviation obtained official sanction for it with notable promptitude when he found that they were unanimous. But it is doubtful whether the scheme in its existing form would have gone through so smoothly if other people besides the air lines had been consulted.

It seems fairly certain that the Foreign Office would not have approved after considering the matter from the viewpoint of the higher diplomacy. And it is perfectly certain that the newspapers would not have approved.

A Matter of Publicity.

In this connection it may be well to remind the air lines that though they have not much cause to thank the daily press for anything at present—seeing that it shows little interest in the air lines until they crash and kill or injure somebody—they will need the help of the daily press more and more as air transport gradually becomes a commercial proposition. Those who run the air lines would be wise to consider which is the better advertisement at the present stage of development a newspaper bearing the air line's stamp in the hands of a foreign buyer hours before he could get it by rail or an airsick passenger going around telling all his or her friends about the discomforts of a closed and insufficiently ventilated cabin.

Personally one is inclined to think that successful newspaper traffic is a better advertisement than is passenger traffic. Something like 750 copies of an average morning paper can be carried for the weight of one passenger. Surely some 7,500 copies of English papers each boldly proclaiming that it arrived that morning in France by air are going to do more to convince people of the reliability of air transport than are 10 passengers, even if they be all pleased with their journey.

And if the proprietors of the English newspapers find their sales on the Continent increasing rapidly thanks to air transport, as they have done this year, then they will also be convinced of the usefulness of air transport and will instruct their editors to treat the subject seriously as they treat shipping and railway matters instead of treating it as a mere stunt according to present methods. The ordinary newspaper editor, sub-editor or what-not obviously has not enough knowledge to deal with aviation properly and in any case his proprietor's word is law. Therefore, not only for the good of the limited interests of the air lines but for the good of aviation as a whole—which means in the end the safety and prosperity of the British Empire—it will be well for the air line proprietors to consider the question of converting the newspaper proprietors to a belief in air transport instead of paying so much attention as they do to the conveyance of passengers who are of little or no use to the revival of British Indusrty.

A Business Opportunity.

Naturally the C.M.A. having been clever enough to secure the newsaper traffic cannot now be deprived of it even if a British line should at once put on an early newspaper machine. In the first place it would be unfair to take away the business and in the second place one imagines that the businessslike manager M. Grosfils has arranged an irrefragible agreement with the newspaper distributors. But one does strongly recommend the Director of Civil Aviation and the air line proprietors to look well into the matter and consider what adequate arrangements can be made for the

future. The demand for British newspapers on the Continent is already such that, unless one's estimate is wrong, the one daily C.M.A. machine has as much as it can carry. Is it not worth while to put on a British machine to carry the excess as soon as the demand grows to more than the "Goliath" can tackle?

At the present moment the whole affair must look to anybody outside aviation like a mere disagreement between the newspaper proprietors and agents on the one hand and the air line and the Department of Civil Aviation on the other. But, as one has endeavoured to show, the real point at issue is a matter of policy affecting not merely the English newspapers or even English trade but in the long run the whole peace and prosperity of Europe, which means the World (with all due respects to the United States of America). There seems to be here or hereabouts an excellent opportunity for our new Air Minister Sir Samuel Hoare to distinguish himself and to demonstrate that sound judgment and business ability for which he has already won a high reputation in other walks of life.—C. G. G.

R.A.F. INTELLIGENCE.

An Honour for the R.A.F.

The Air Ministry announces that H.M. the King has been pleased to approve the following appointment:—H.R.H. Edward Albert Christian George Andrew Patrick David Prince of Wales, Duke of Cornwall, K.G., K.T., G.C.S.I., G.C.M.G., G.C.I.E., G.C.V.O., G.B.E., M.C., to be a Group Captain in the Royal Air Force.

Appointments.

AIR MINISTRY, Nov. 30th.

S/Ldrs. R. P. Willock, from H.Q., Iraq Command, to command No. 4 Armoured Car Company, 3/11; F. H. W. Guard, C.M.G., D.S.O., from H.Q., Iraq Command, to command No 3 Armoured Car Company, 3/11; J. W. Cruikshank, O.B.E., from H.Q., Iraq Command, to command No. 6 Armoured Car Company, 3/11; D. Harries, A.F.C., from H.Q., Iraq Command, to command No. 5 Armoured Car Company, 3/11; G. S. M. Insall, V.C., M.C., from R.A.F. Depot to Armament and Gunnery School, 8/12.

F/Lts. H. G. Bowen, from H.Q., Iraq Command, to No. 3 Armoured Car Company, 3/11; G. F. P. Warren, from H.Q. Iraq Command, to No. 4 Armoured Car Company for duty as Adjutant, 3/11; H. M. K. Brown, from H.Q., Iraq Command, to No. 4 Armoured Car Company, 3/11; D. O. Mulholland, A.F.C., from H.Q., Iraq Command, to No. 5 Armoured Car Company, for duty as Adjutant, 3/11; C. E. Wardle, from H.Q., Iraq Command, to No. 6 Armoured Car Company, 3/11; H. A. J. Wilson, O.B.E., from H.Q., Iraq Command, to No. 6 Armoured Car Company, for duty as Adjutant, 3/11; H. V. Rowley, from H. Q., Iraq Command, to No. 5 Armoured Car Company, 3/11; F. Hudson, M.C., from No. 2 Squadron to No. 2 Squadron (Detached Flight) (No. 12 Wing, Ireland), 1/12; H. E. P. Wigglesworth, D.S.C., from No. 2 Squadron (Detached Flight) (No. 12 Wing, Ireland), to No. 2 Squadron, 5/12; H. G. W. Lock, D.F.C., from R.A.F. Depot to I.A.A.D., 1/12; P. H. Young, M.B., from C. and M. Party, Moascar, to No. 216 Squadron, 31/10; F. H. Coleman, from No. 2 F.T.S. to Electrical and Wireless School, 8/12; J. H. O. Jones, from R.A.F. Base, Gosport, to R.A.F. Base, Gosport (No. 210 Squadron), 21/11; M. Keegan, O.B.E., M.M., from Boys' Wing, Cranwell, to School of T.T. (Men) (Supernumerary), 1/12.

AIR MINISTRY, Nov 28th.

Wing/Cmdr. W. H. Primrose, D.F.C., from H.Q., Iraq Command, to command Armoured Car Wing H.Q., 3/11.

S/Ldr. A. G. R. Garrod, M.C., D.F.C., from School of Army Co-operation to Air Ministry, Department of A.M.P., 4/12.

F/Lts. J. Duminy, from R.A.F Depot to No. 2 F.T.S., 1/12; J. W Harper, M.D., from No. 14 Squadron to Palestine General Hospital, 27/10; M. Moore, from H.Q., Constantinople Wing to H.Q., R.A.F., M.E., 31/10; R. P. M. Whitham, M.C., from H.Q., Constantinople Wing, to H.Q., R.A.F., M.E., 31/10; M. J James, M.B.E., from H.Q., Constantinople Wing, to Egyptian Group H.Q., 31/10; O. Armer, from No. 2 Squadron (Detached Flight) (No. 12 Wing, Ireland), to M.T. Repair Depot, 30.11.

Lieut.-Col. (Local Col.) H. G. Reid, C.M.G., C.B.E., D.S.O., (R.A.S.C.), to command H.Q., Palestine, 6/3.

Lt./Col. L.F. Blandy, D.S.O., R.E, is granted a temporary commission as Group Captain, effect from Nov. 30th (seniority of Jan. 1st, 1919).

[Colonel Blandy left the R.A.F. to become Director of Communications under the Controller-General of Civil Aviation. He now returns to the R.A.F. as the bulk of the work of his department has once more come into its proper place as a Service activity.—Ed.]

The R.A.F. in India.

In a written reply to Colonel Sir Charles Yate, who asked when Sir John Salmond's Report on the R.A.F. in India would be published, Lord Winterton (Under-Secretary for India) states:—

"The report deals with defence questions, and in view of the important strategic considerations involved, it would not be in the public interest to publish it."

[This report must be forced out of the India Office by some means or other. The old pleas of "strategic considerations" and "public interest" are merely camouflage to hide the gross incapacity of the Indian Army Command and of the Indian Government. Now that the R.A.F. in India is to be re-formed by Air Vice-Marshal Philip Game the old "strategic considerations" will no longer exist and can no longer be used as an excuse for hushing up the gruesome story of incapacity in high places, a story which reflects as discreditably on a number of senior officers in the R.A.F. as it does on the Indian Army Command and on the Indian Government.—C. G. G.]

R.A.F. Gliding.

Recent appointments to the C.F.S. may be taken as confirmation of the rumour that the R.A.F. intend to take a very practical interest in gliding.

Of course the Research Department is interested because gliding and soaring will help to solve many problems which cannot be solved either by pure science or by flying power-driven aeroplanes. But apart from research, the Training Department at the Air Ministry thinks it sees in gliding a way of saving the tax-payer's money. Many crashes in the R.A.F. happen when a pilot is doing his first flights alone. So the idea is to give him instruction up to a point in a dual-control aeroplane with an instructor, so as to get him used to being in the air, and then to turn him loose on his own in a glider.

He will find it difficult to hurt himself badly in so slow a machine, and, if he does crash, the machine costs little to repair, or for a new one for that matter, and there is no expensive engine to break, and no petrol to catch fire. By the time he knows how to handle a glider well, and how to pick and reach a landing place after each glide the pilot ought to be pretty competent to handle a machine with an engine. And at any rate if he is not able to handle a glider he certainly is not competent to fly a power-driven machine, so that his natural defects are discovered at little expense.

The success of gliding as a part of R.A.F. Flying Training depends naturally on whether suitable ground can be found anywhere near existing R.A.F. stations. Obviously it would be absurd to build special gliding stations at places like Firle or Itford, for the cost of the quarters would absorb more money than would be saved by avoiding crashes with power-aeroplanes. But if hills of the right shape and size can be found near enough to existing R.A.F. quarters then experimental training on gliders will be started almost immediately.

Those who know Salisbury Plain say that some quite good hills exist not far from the Central Flying School and Netherhavon. Also it should be possible to find even better hills, both longer and steeper, close to the R.A.F. Wireless School at Flowerdown, near Winchester. And there are certainly some excellent slopes for the purpose within reach of the big school for boy mechanics at Halton, near Wendover. There is one in particular right alongside the Prime Minister's estate at Chequers, overlooking Ellesborough golf course, which seems to have been made specially for the purpose. Another good spot might be found not very far from the Cadet College at Cranwell, where the famous Lincoln Ridge drops steeply to the low country to the West.

If the scheme proves workable, as it certainly should do, there will be a good deal of work of a novel kind for the Aircraft Industry. And training on gliders should not only save many broken limbs, not to mention a certain number of lives, but it should also produce pilots with better judgment and with a lighter and more certain touch on their controls than does the present system of giving men their early training on machines with an excess of power on which to rely when in trouble.—C. G. G.

Squadron Movements.

No. 56 Squadron, R.A.F., ceased to exist in Egypt, with effect from midnight, September 23rd, 1922; headquarters and two flights were re-formed on November 1st, 1922, at Hawkinge. The third (detached) flight of No. 56 Squadron, now serving with the Constantinople Wing, will rejoin the squadron at Hawkinge on withdrawal from the Constantinople area.

No. 3 Squadron, R.A.F., moved on November 8th, 1922, from Leuchars to Gosport.

The Fate of Inchinnan.

The land and buildings comprising the Airship Station at Inchinnan were handed over on October 12th, 1922, to the Disposal and Liquidation Commission for disposal.

ACTIVE AIRCRAFT IN IRELAND.

The *Daily Telegraph* of December 5th says:—

"There was a remarkable sequel to an ambush of National troops by sixty Irregulars near Drimoleague, West Cork, on Sunday. A Free State aeroplane caught up the rebels, and dropped bombs on them with very disastrous results, according to an official report. The surviving Irregulars took refuge in a wood, which the aeroplane then raked with machine-gun fire, inflicting further heavy casualties. Although in use for scouting purposes all over the South for a week, this is the first occasion an aeroplane has actually been in conflict. So successful were its operations that the military in Cork regard the aeroplane as the deciding factor in the present struggles."

[Which is precisely what anybody with any military knowledge would have known from the very start of "the present struggle." It is at any rate interesting to know that there is one unit in the Free State Army which is not afraid to make a direct attack.—C. G. G.]

AIR TRANSPORT QUESTIONS IN THE HOUSE.

The subject of air transport of newspapers was mentioned in the House of Commons on December 5th. Mr. C. Kenneth Murchison asked three questions and Admiral Sueter asked one. These and the replies of the Secretary of State, Sir Samuel Hoare, appear hereafter :—

Mr. Murchison :—To ask the Secretary of State for Air, whether he is aware that the sale of British newspapers in France and Italy has been increased five-fold during recent months owing entirely to their early arrival by aeroplane in Paris and their distribution thence by early trains; and whether he is prepared to recommend giving a subsidy to air lines, which would be well applied in thus fostering international understanding.

Answer :—I fully appreciate the advantages of carrying British newspapers to the Continent by air, but while I recognise the importance of the early distribution abroad of these newspapers, I am not in a position to say whether it will be possible to find funds to provide a sufficient subsidy to enable these newspapers to be transported in British aircraft.

Mr. Murchison :—To ask the Secretary of State for Air, whether the new subsidy given as a monopoly to Handley Page Transport, Limited, for the London-Paris air route provides for the early daily carrying of British newspapers as well as for passengers; and whether the transport of passengers cannot be remunerative without subsidy.

Answer :—The answer to the first part of the question is that the new subsidy granted to the Handley Page Transport Co. for the operation of the London-Paris route does not specifically differentiate between the carriage of passengers and goods, but leaves it open to the firm to carry that class of freight which they find most remunerative.

The answer to the second part is that the transport of the comparatively small number of passengers at present travelling cannot be self-supporting without some form of direct financial assistance, but as the volume of traffic increases this position will improve and should ultimately right itself.

Mr. Murchison :—To ask the Secretary of State for Air, whether the original air-line subsidy, based on mileage and weight, was changed for a flat rate of £15,000 a year merely for 300 effective return flights, the majority of which may be run in the summer months alone; and, if so, why was this done.

Answer :—The answer to the first part of the question, which I take to refer to the London-Paris route, is in the affirmative, but I would add that under the agreement a specified number of flights must be carried out during the winter months. With regard to the second part, the former subsidy arrangement proved to be unsatisfactory, the traffic available not being sufficient for the three British companies who were competing for it on this one route, and the whole scheme was therefore recast in order to make the best possible use of the money available.

Rear-Admiral Sueter :—To ask the Secretary of State for Air, whether he is aware that, as a result of money grants made by the French Government to French civil aviation companies, British newspapers and freight are carried by French aircraft between London and Paris at rates with which it is impossible for British aviation companies to compete; and whether some arrangements can be made to prevent this obvious undesirable state of affairs continuing and for traffic to be carried by British machines.

Answer :—The answer to the first part of the question is in the affirmative.

As regards the second part, the future policy in regard to Civil Aviation is now being considered, and I will bear in mind the question of my hon. and gallant friend when reviewing the question of the future subsidies to be granted to the air transport lines.

THE PARLIAMENTARY PRIVATE SECRETARY TO THE S.O.S.

Lieut.-Col. the Right Hon. Sir Samuel Hoare, Bt., C.M.G., M.P., Secretary of State for Air, has appointed Major Viscount Sandon, M.P., as his Parliamentary Private Secretary.

A SPECIAL FOREIGN ISSUE.

At the end of this week The Aeroplane and General Publishing Co. Ltd. will produce a Special Foreign Issue of The Aeroplane dealing with the progress of the British Aircraft Industry during 1922. It will contain a number of photographs of new British aeroplanes built to the order of the Air Ministry and only just now passed for publication. Also it will contain much useful general information concerning the work and development of each firm which has co-operated in the production of the issue.

This Special Foreign Issue is being printed in three languages, English, Spanish and French and will be circulated chiefly abroad for the benefit of our foreign trade. It is quite distinct from the ordinary weekly numbers of The Aeroplane. The price will be 2s. per copy retail, and copies can be obtained through the ordinary newsagents, or for 2s. 3d. post free from The Aeroplane and General Publishing Co. Ltd., Cannon House, Breams Buildings, E.C.4.

MR. COBHAM'S ACCIDENT.

His many friends will regret to hear that Mr. Alan J. Cobham "the famous trans-European air taxi-man and indefatigable air tourist" (*vide* daily press) has been incapacitated from flying for some weeks. When starting up his car last week the engine back-fired and he broke his wrist. He is now out and about with his arm in a sling and hopes to be flying in about three weeks.

Everyone will wish him an early recovery.

THE NEWELL MEMORIAL.

The sum of £30 has already been collected for the benefit of the widow and child of the late Mr. Newell the parachutist who was drowned in Holland recently. Further contributions are earnestly solicited. These may be sent to: Mr. E. R. Calthrop, 423, Edgware Road, W.2, and the Revd. Prebendary F. W. Joyce, The Vicarage, Harrow.

PERSONAL NOTICES.

DEATH.

GAYES.—At Warden, Isle of Sheppey, on November 30th, in an aeroplance collision, Pilot Officer William James Gayes, R.A.F.

MARRIAGE.

RABAGLIATI—LARPENT.—On December 4th, at St. Ethelburga's, Bishopsgate, Lieut.-Col. Cuthbert Euan Charles Rabagliati, late K.O.Y.L.I. and R.F.C., youngest son of Andrea C. F. Rabagliati, M.D., Whinbrae, Ben Rhydding, and grandson of the late Duncan McLaren, M.P., Edinburgh, to Clarissa Catherine Melvill de Hochepied Larpent, only daughter of the late John Melvill, ninth Baron de Hochepied, and of the Baroness de Hochepied.

THE BRISTOL THREE-SEATER "TAXI-PLANE."



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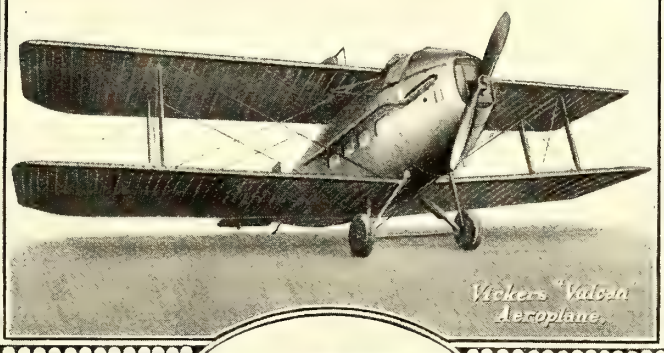
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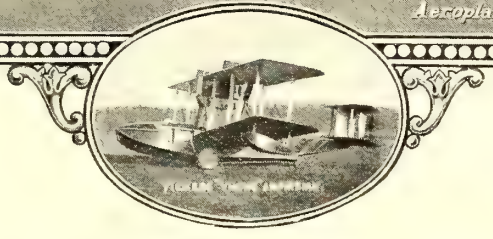
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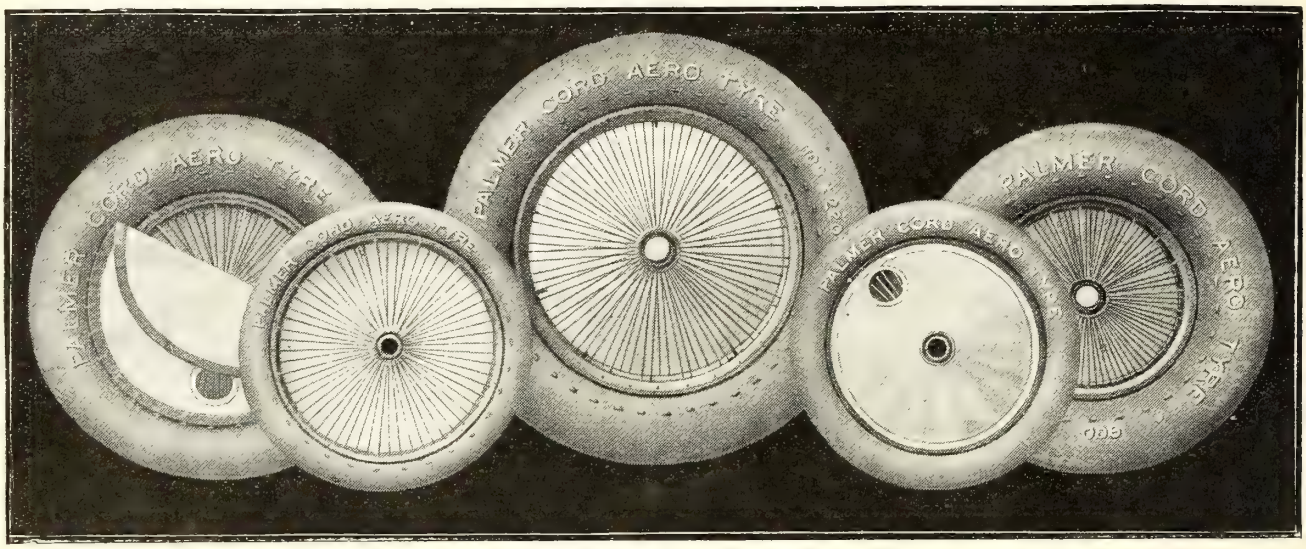
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,,	111	150.	38.09	104/46
600×75	21	160.	28.	Central
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,,	111	150.	38.09	104/46
700×75	78	178.	44.45	132/46
,,	79	178.	44.45	Central
,,	100	178.	38.09	132/46
,,	101	178.	31.75	132/46
700×100	77	178.	44.45	132/46
,,	92	185.	55.	135/50
,,	95	185.	55.	Central
700×100	96	178.	55.	132/46
,,	99	178.	38.89	132/46
,,	112	150.	38.09	Central
650×125	119	178.	55.	132/46
750×125	77	178.	44.45	132/46
,,	92	185.	55.	135/50
,,	95	185.	55.	Central
,,	96	178.	55.	132/46
,,	99	178.	38.89	132/46
,,	112	150.	38.09	Central
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,,	163*	185.	66.67	135/50
1000×150	131	220.	66.67	Central
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,,	141	250.	80.	Central
,,	201	185.	60.32	125/60
1000×150	209	185.	55.	Central
,,	210	185.	60.32	Central
1000×180	148	220.	80.	Central
,,	149	185.	55.	Central
,,	155	220.	66.67	Central
900×200	107	185.	55.	Central
,,	108	185.	55.	125/60
,,	128	220.	66.67	Central
,,	137	250.	80.	Central
,,	202	85.	60.32	Central
1100×220	134	220.	66.67	Central
,,	136	250.	80.	Central
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AERONAUTICAL ENGINEERING

SUPPLEMENT TO "THE AEROPLANE"

INCORPORATING AIRCRAFT ENGINEERING AERODYNAMICS, AIRCRAFT FINANCE AND COMMERCIAL AERONAUTICS AND MATTERS PERTAINING TO THE AERONAUTICAL ENGINEER AND THE AIRCRAFT TRADER.

THE WEEKLY COMMENTARY.

A recent dissertation by The Editor dealing with the suggested development of cheap low-powered aeroplanes has aroused the wrath of the Technical Editor, who in the article below attempts to enlighten those who may have been misled by C. G. G.

In this note it is suggested that it would in fact be unwise to attempt at present the development of what has been termed the "auxiliary engined glider" but that the minimum power aeroplane is another matter altogether.

As to this latter type of machine it is suggested that C. G. G.'s objections are purely of a nature obstructive to progress.

Notes of considerable interest, dealing with the development of aviation in Germany, Hungary and China, will be found in this issue.

THE LOW POWER AEROPLANE.

It has been necessary on one or two previous occasions to express one's profound disagreement with the Editorial Editor's pronouncements. That these occasions have been relatively few is not to be taken as implying any general concurrence with his opinions—but merely as an indication that the exigencies of time and space permit one to deal only with those of his errors which seem likely to do serious harm.

Answerable Objections.

An article "On the Gliding Epidemic—II." which appeared in the issue of Nov. 22nd over his initials however is so full of confused thinkings, erroneous statements, deductions from unsound premises, etc., and deals with a subject of such importance that it seems necessary to supply some sort of an antidote to it as quickly as may be.

The matter to which objection has to be taken arises from a letter from Mr. A. G. T. Perkins advocating the development of "auxiliary engined gliders." The Editor objects to this name on the ground that "if it is a glider it has not got an engine." To which one can only reply that if it has an engine and is not a glider it pretty certainly won't fly and certainly is not an aeroplane. And that's even more that. He then proceeds to coin the fearful phrase "minimum power kite." To which one may object that if it's a kite it has a string, and if there is a string about in this connection it should append to the throat which first uttered the phrase.

A Confusion of Types.

Before dealing with those of his arguments which have an air of verisimilitude, it seems worth while to clear up a certain confusion which the article in question betrays. Mr. Perkins pleads for the development of a machine which shall normally soar but which will have an engine to help it over bad patches. C. G. G. at some length explains his prejudice against the motor cycle engined aeroplane. Even if his objections were well founded they would be irrelevant—for the two types have little in common except that both are meant to fly.

If it is desired to soar to the greatest possible extent, and to use the auxiliary engine only as a sort of last resort then obviously one must bear in mind in the first place the requirements for soaring flight.

Conditions Essential to Soaring.

There is no need here to discuss the various methods by which soaring may be possible—it is sufficient that—by definition—soaring is flight by the aid of power supplied by the wind. The power available from any given favourable wind is directionally proportional to wing area. That is, if one square foot of wing of a given form can obtain from the air enough power to lift 2 lbs., then 100 sq. ft. of a wing of the same form can obtain 100 times as much energy and carry 100 times as much load. This means in effect that for soaring the weight of the machine is immaterial provided that the area of supporting surface is adequate for that weight.

[One confesses to complete ignorance of what "directionally proportional" means, and of why that "2 lbs." is dragged into the argument, unless it be that 1 lb. would be so lonely.—C. G. G.]

Practical experience so far as it goes indicates that with a well designed glider one can hope to obtain energy from the wind of an amount sufficient to support 2 lbs. per sq. ft. of wing area, but generally insufficient to support 4 lbs. per sq. ft.

If it were possible to keep the wing loading down to the neighbourhood of 2 lbs. per sq. ft. soaring would be as possible on a machine weighing 20 tons as it is on one weighing 200 lbs.; and the fact that the 20 tonner really needed over 200 times as much power to sustain it would be immaterial as this particular form of power costs nothing.

Adding an Engine to a Glider.

In practice a man carrying soaring machine has to be lightly loaded, and therefore of large area, and the actual total weight of the machine is immaterial. If one proposes to build a machine which is to be primarily a soaring machine, but is also to be provided with a low powered engine to help it over patches of unfavourable air, the requirements of soaring flight will necessarily be predominant in the design. The total weight will become of some importance, for the h.p. required in level flight using the engine in still air is directly proportional to weight—other things being equal. But it will be useless to cut weight by reducing the size of the machine to such an extent that the wing loading rises above the soaring limit.

And as one must now carry the added weight of engine and fuel the auxiliary engined machine will tend to be larger and heavier than the engineless one.

Despite certain somewhat spectacular performances made under very favourable conditions we do not yet know anything about the possibilities of soaring, and there is a very sound argument against attempting to develop the auxiliary engined machine at present. That argument is simply that it will complicate an already sufficiently difficult problem and that it will retard the development of knowledge in this matter.

But if one frankly sets out to build a machine which shall fly primarily as a power driven craft, and seeks to produce a satisfactory aeroplane of minimum power and cost the conditions at once alter profoundly. Other things—which include aerodynamical efficiency—being the same the power required for flight increases with weight and with speed.

Weight can be decreased by decreasing the size of the machine. This tends to increase the wing loading, and therefore the speed, but the speed rises less rapidly than does the loading, and for equal useful load carried, the machine for minimum total power must be a smaller, lighter, and more heavily loaded machine than either the engineless soarer or the auxiliary engined machine.

The Glider, with or without Engine.

A "glider" weighing empty 200 lbs., or 350 lbs. loaded with 175 sq. ft. of surface (2 lbs. per sq. ft.) can be built with a gliding angle of about 1 in 15 at 24 m.p.h., which means that it requires just about 1 h.p. for level flight. Suppose it is decided to fit to this machine a light engine developing 5 h.p. One might find such an engine weighing about 25 lbs. By the time one had fitted an engine mounting, fuel tank and one hour's fuel, airscrew, and engine controls one would have nothing left out of 50 lbs. of added weight. This by itself is an increase of weight and of loading of

nearly 15 per cent. and—neglecting the fact that it might be necessary to strengthen and therefore to increase the weight of the machine—would lead to an increase in the power required of about 22 per cent. Engine cooling must add to the resistance to some extent and the resistance of parts of the machine in the slip stream would be considerably increased.

It is therefore safe to say that at least 1½ h.p. would be necessary for level flight and this is probably an underestimate. An airscrew for so low a power and so low a speed could not be expected to be highly efficient—65 per cent is probably a liberal estimate—which would leave only 3¼ h.p. of the total 5 available for propulsion. The margin of 1¾ h.p. would allow a climb of less than 150 ft. per min., or of an increase of speed in level flight to about 32 m.p.h. These figures are almost certainly optimistic—and even so the results obtainable do not seem to justify the probable spoiling of a perfectly good soaring machine.

If one seeks to put in a still larger engine, the added weight of engine, fuel, and the weight of strengthening up the machine generally will become progressively more and more serious, and it will be found difficult to produce any result appreciably better than that suggested above so long as one is hampered by soaring requirements.

[Which is just what one said in a fraction of the number of words.—C. G. G.]

The Low-Powered Aeroplane.

The problem of producing a really satisfactory low-power aeroplane which is not expected to soar is entirely another matter. If such a machine is to be reasonably safe the essential requirements are, low landing and getting-off speeds, and a really steep initial climb. The low landing speed calls for low wing loading and/or a high lift wing. The steep initial climb calls for a relatively low total weight per h.p. and therefore for the lightest possible machine. The most effective compromise will be found in the use of a wing giving as high a maximum lift as is compatable with reasonable efficiency, and loading that wing up to a figure considerably greater than would be permissible for soaring.

It is somewhat interesting to examine what can be done in this direction. Bearing in mind that a low-powered aeroplane if it is to have any attractions at all must be cheap it is fairly obvious that the determining factor in the design will as usual be that of the choice of engine.

Obviously there is no existing aeroplane engine which can be considered. Equally obviously it is futile to consider developing a special engine for a problematic type of aircraft. And of existing engines the choice lies between air-cooled motor-cycle engines and high-speed water-cooled light car engines. Cheapness, lightness, and simplicity both indicate that the air-cooled motor-cycle engine deserves first consideration. What can be done with such an engine?

There are a number of such engines,—nominally of 6 to 8 h.p.—on the market to-day which develop from 15 to 20 h.p. for a total weight of under 100 lbs. Using such an engine it is quite possible to build a small cantilever monoplane—of about 22 ft. span and 90 to 100 square ft. of surface, which with engine pilot and two hours' fuel will weigh between 360 and 420 lbs.

Such a machine would stall at not more than 28 m.p.h. and could be put on the ground at a distinctly lower speed than this. It would be little more difficult to land than the average 2 lb. a sq. ft. glider and it would certainly be practicable to land on skids rather than on wheels and to pull up in 5 to 6 yards in a dead calm.

At 32 m.p.h. it would need about 3 h.p. to fly it level. Assuming that the engine developed 18 h.p. and that an airscrew efficiency of 60 per cent. was available at this speed the rate of climb would be over 650 ft. per minute, and the top speed would be in the neighbourhood of 70 m.p.h.

An engine of the type and power considered can be purchased retail for under £50. The aeroplane itself would be simpler and cheaper to build than some of the more ambitious types of glider and it is certain that such a machine could be sold at under £200 and probably at under £150.

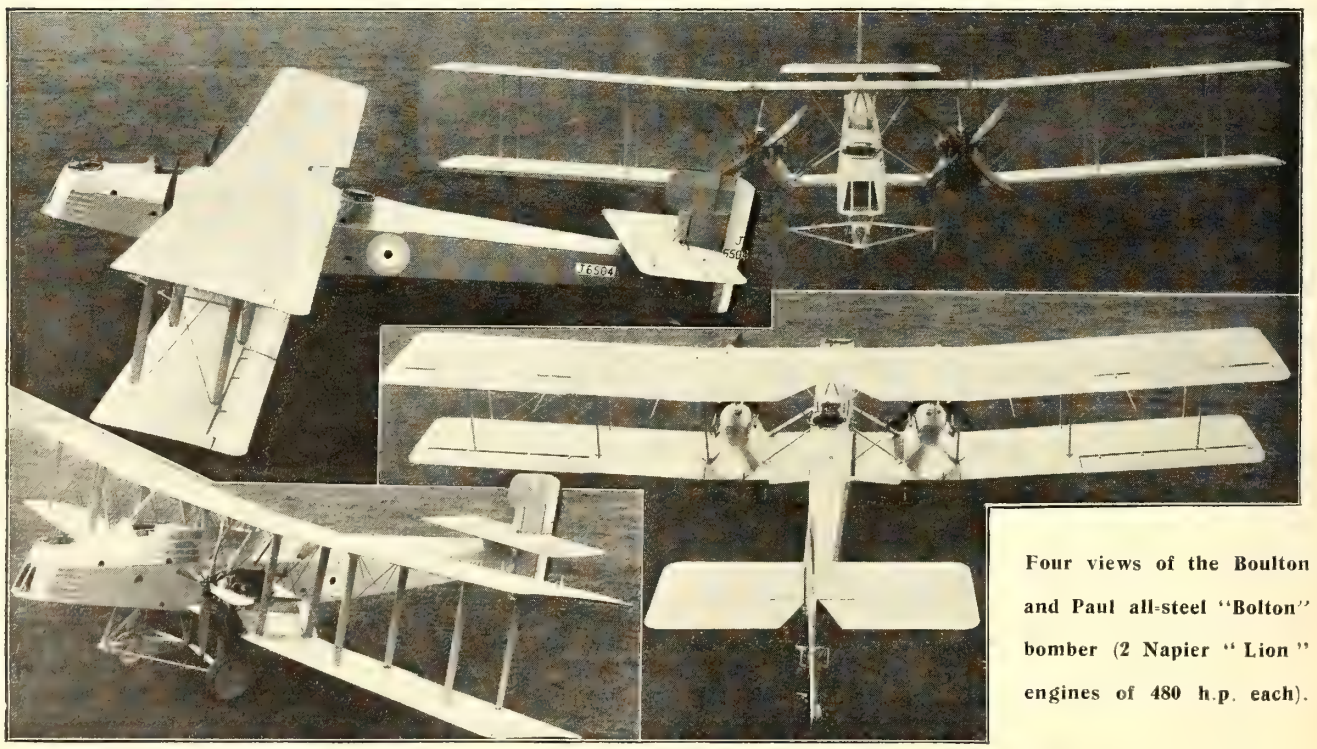
The Editor's Objections.

The Editor has a number of objections to such a machine. He first of all raises for the *n*th time the well known argument about the lad with any money, the designing female, and the flapper bracket analogy. From observation one can aver that in fact the lad usually shows a consistent devotion to the motor cycle and the flapper bracket, but that the female adornment to the bracket changes with great frequency. This does not necessarily indicate that the female is not designing, but it does seem to indicate the capacity of the average lad to protect himself against the wiles of the designing one. And it is not inconsistent with a belief that the designs of the female usually are perfectly legitimate ones, while those of the lad are of a type to which one can not properly refer in a respectable family journal such as The Aeroplane.

Nevertheless there is something in the suggestion that the single seater is of very limited utility. It is however absurd to refuse to try the single seater on that account. It can be said definitely that a single seater of some such performance as that outlined above could be built with an existing motor cycle engine at once. There are no simple engines which could be bought over the counter sufficiently powerful to build a safe two seater of generally similar characteristics.

When one has produced the single seater, shown that it can fly and demonstrated the possibilities of really simple and economical machines it may be possible to approach an engine maker and say "Please build me an engine of the same weight per h.p., of the same cost per h.p., of equal simplicity and 50 per cent. greater power for the two seater machine of similar type." Go to him now with that request and he will reply "Your Editor says you can't build such a machine, and that it wouldn't be safe if you did so what's the good of wasting my time with such nonesense."

For the remainder of his qualms one has little respect.



Four views of the Boulton and Paul all-steel "Bolton" bomber (2 Napier "Lion" engines of 480 h.p. each).

ROLLS-ROYCE
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DEPENDS ON RELIABILITY

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ROUND BRITAIN, 9th September, 1922.
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PREVIOUS SUCCESSES:

ACROSS THE ATLANTIC *(without a stop)* **1,890 miles.**

ENGLAND TO AUSTRALIA – 11,500 miles.

ENGLAND TO SOUTH AFRICA—6,281 miles.

ENGLAND TO SWEDEN *(and back)* **2,450 miles.**

ACROSS THE SOUTH ATLANTIC—3,822 miles.

ENGLAND TO CONSTANTINOPLE—2,160 miles.

ENGLAND TO FINLAND—1,100 miles.

ENGLAND TO WARSAW—1,050 miles.

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it is very little use trying to convince him of the fact that practical engineering experience throughout the centuries has shown that the smaller one builds a given type of structure the more difficult it is to make it weak.

As a matter of fact an aeroplane of very much lighter construction than one could afford in any really cheap aeroplane has been flown in this country during the last five years with an engine of the flat twin type. This engine frequently cut out one cylinder, and made rather a habit of blowing cylinders off in the air. In no case did any structural damage occur to the aeroplane as a result of these habits.

It would certainly be easier to design a mounting which would hold down a 20 h.p. engine on a 400 lb. aeroplane than one which would hold a 100 h.p. engine in a 2,000 lb. aeroplane when driving a broken airscrew. And it would be difficult to design a 20 h.p. airscrew which would be relatively as weak—and therefore is likely to break—as is the average 100 h.p. airscrew.

There will very certainly be a number of accidents of one type or another if and when machines of really low power come into use. But the argument that therefore no attempt to develop the type should be made should scarcely come from one who ostensibly stands for progress in aviation.

The "softly softly catchee monkey" type of argument has its points—but it comes strangely from the mouth of one who professes to be both a pioneer of aviation and a believer in the doctrines of Clausewitz.

One does not profess to know with any accuracy what is possible in the direction of producing really cheap and efficient low power aeroplanes. One is perfectly certain that C. G. G. hasn't even a vague idea of those possibilities and the only satisfactory method of enlightening either of our ignorances is to try and find out. The essential difference would appear to be that while personally one wishes to be enlightened, C. G. G. does not.— W. H. S.

[One has no objection to enlightenment so long as somebody who does not matter does the paying and neck-breaking. —C. G. G.]

HUNGARY AND THE NEXT WAR.

Some time ago it was announced that the Franco-Roumanian Air Line, which is subsidised by the French Government, had opened an extension of its Paris-Prague line and was flying regularly from Prague and Vienna to Budapest, and that it would in the near future extend via Belgrade and Bucharest to Constantinople. Also some months ago two of the Franco-Roumanian Company's machines actually flew to Constantinople and back, taking several weeks over the journey and apparently stopping at the various towns en route to make arrangements for regular landing grounds and for supplies of fuel etc. So far nothing further has been heard about any regular service to Constantinople. Budapest at present seems to be the limit of the line, and even so the machines from Paris to Budapest are few and far between.

There is, however, no doubt about the French intention to carry on a regular service to Constantinople as soon as possible. Furthermore, it is definitely stated by those who know that the French line is to be extended beyond Constantinople along the old Turkish military road to Angora, the capital of Anatolia, and now the capital of all Asia Minor. Also the same line has the intention of extending from Budapest via Bucharest to Kiev and Odessa, the great Black Sea port.

These French schemes are certainly clever, for it seems that Kiev the capital of the Ukraine and Odessa the Black Sea port are likely to be the first Russian towns to become civilised and get rid of Bolshevism. In any case these must be more or less civilised even if they remain under Bolshevik control, simply so that they may be used as distributing centres to the surrounding country.

As to Angora, the French and the Turks have always been good friends and fought together against the Russians (France's later allies) in the Crimean War.

In this Near Eastern direction there certainly seems to be plenty of room for the further exercise of that energy which General Brancker is displaying so conspicuously as Director of Civil Aviation. If the French do actually develop their line to Budapest, and thence by its two branches to South Russia and to Angora, it is certain that the French will acquire a very valuable aid to business in these areas as soon as trade revives with our late enemies and former friends the Turks, and with our late allies and future enemies, the Russians.

As one has pointed out in this paper over and over again the true route to India is not across that absurd desert route and by the still more absurd journey across France and along the Mediterranean. The true route to India is through Germany to Vienna, Budapest, Constantinople, and Angora to Baghdad. All of it is over almost ideal flying country and all of it is along either main-line railways, grand trunk roads, or great rivers.

Incidentally, it is of particular interest to note that the chain of landing grounds along the aforesaid route to India represent in fact our lateral lines of communication in the great war against the Slavs, always provided that in that war instead of making the Turk our enemy (as we did in order to save a couple of million pounds in bribes at the beginning of this war) we have the sense to make the Turks, Hungarians, and Austrians our allies and thus hold up the advance of the Russians through the Caucasus and beyond Roumania. While that line is held in the south-west the British and German troops together will be quite competent to deal with the yellow hordes in their North-Western advance.—C. G. G.

THE "BRISTOL" THREE-SEATER TAXI.

In a recent leading article reference was made to the fact that the Bristol Aeroplane Co. Ltd. were the only firm prepared to meet certain definite needs put forward by Major Kingsley of the River Plate Aviation Co. in order to fulfil the requirements of trade in the Argentine Republic. The machine to which reference was made is a completely new type known as the Bristol Three-Seater "Taxi-plane."

It has been designed to keep running and maintenance costs at a level to compare favourably with those of a high-powered three- or four-seater motor-car, and results show that this aim has been achieved. The 100 h.p. "Bristol" Lucifer radial engine, which consumes only 5 gallons of petrol per hour, is used. At cruising speed the machine will cover about 15 miles to the gallon of petrol. The whole construction is on sturdy and simple lines, calling for the minimum of spare parts and suitable for maintenance by an owner pilot.

The machine carries two passengers in addition to the pilot in an exceptionally roomy and well-fitted cockpit and a considerable quantity of baggage in a separate hatch. Entrance to the passengers' cockpit is by a side door, and a detachable top, converting the cockpit into an enclosed cabin, can be supplied for use in inclement weather.

The Lucifer engine is mounted on a readily removable swinging mounting, which gives instant access to the back of the engine for adjustment of magnetos and carburetters and dispenses with the necessity for removable cowling. A steel fireproof bulkhead is fitted behind the engine, and all control connections pass through fireproof glands. Carburetter intakes are carried through the bottom side of the engine cowling, eliminating any possibility of petrol accumulating.

The petrol system is by gravity from a scuttle tank in front of the pilot.

The upper and lower wings are identical and interchangeable. They are of the single bay type and the interplane struts are of "N" formation, requiring no trueing up. The undercarriage is of the oleo-spring type, fitted with a tapered needle valve to control the passage of the oil and so to give constant oil pressure throughout the stroke of six inches. This undercarriage allows of the machine being landed on very rough ground. A tail trimming gear is fitted allowing the pilot to turn the machine for all speed and load conditions.

For commercial transport work it should be quite useful and it seems likely to give very little trouble and to be a sound revenue producer. In countries such as Australia, New Zealand, Argentina, and Canada one may expect a brisk demand for a machine which seems to fulfil many requirements.

Specification of the Bristol Three-Seater.

Dimensions :		Baggage	75
Span 31 ft. 0 in.			
Length overall ...23 ft. 3 in.			2,000
Height 8 ft. 10 in.		Loading :	
Weight :	lbs.	Weight per h.p. ...20.0 lbs.	
Machine empty 1,210		Weight per sq. ft. ... 7.0 lbs.	
25 galls. Petrol; 3 galls.		Performance—Speed :	
Oil	215	At ground 90 m.p.h.	
3 galls. Oil		At 5,000 ft 88 m.p.h.	
Pilot	180	Climb :	
Passengers (2)	320	To 1,000 ft. 2 minutes.	

A VERTICAL LIFT MACHINE.

Mr. J. B. Passat, who for many years has been engaged in the construction of experimental ornithopters at Wimbledon, claims that he has succeeded in producing a machine which lifts vertically and progresses horizontally.

It is also said that the British Air Ministry has been sufficiently interested in the results to offer M. Passat a 120 h.p. engine for further experiments.

A CHANGE OF OCCUPATION.

Mr. A. J. Sutton Pippard, the well known authority on aeroplane stresses, who was for some time a member of the firm of Ogilvie and Partners Ltd., has now severed his connection with that firm and has been appointed Professor of Engineering at Cardiff University.

A D C
LIMITED

LONDON to CALCUTTA in an A.D.C. D.H.9.



Capt. Norman MacMillan M.C., A.F.C.



Capt. MacMillan arriving at Karachi

Messrs. AIRCRAFT DISPOSAL CO., LTD.,
London.

Gentlemen.

Several things may interest you in connection with the flight from London to Calcutta in which I piloted a 240 h.p. SIDDELEY PUMA—D.H. 9 supplied by A.D.C.

We made a non-stop aeroplane flight across the eastern Mediterranean from Athens to Egypt (Sollum), a distance of 485 miles, in 4 hours 30 mins. Not once during this sea crossing did the engine give a moment's cause for anxiety.

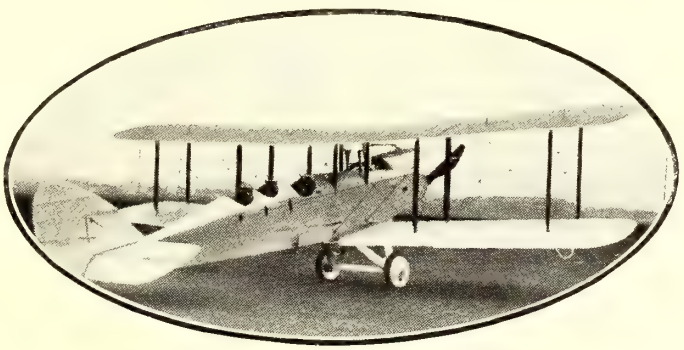
We made the first flight across India during the monsoon—through tropical storms and with temperatures ranging up to 123° F. in the shade. Mountain flying and desert flying we had in plenty, bad going in the air and on the ground.

The load carried was far in excess of the war load for which the machine was designed and the strains imposed upon her were vastly greater than would have been the case with normal load.

It is not possible to say we had no trouble—I feel certain that any present day machine would have given trouble under the conditions we encountered—but I think that its performance in carrying us to Calcutta speaks eloquently for the condition of the machines which you supply.

Yours faithfully,

NORMAN MACMILLAN (signed).



The A.D.C. 3 seater D.H.9 used in the flight.

AIRCRAFT DISPOSAL COMPANY, LIMITED,

REGENT HOUSE, KINGSWAY, W.C.2.

AVIATION IN CHINA.

An Englishman with considerable personal knowledge of aviation who has recently left China gives a very interesting account of the true state of Chinese aviation.

It appears that in North China there are about thirty partially-trained Avro pilots. As soon as these pilots become at all promising they are seized by the various Tuchuns, otherwise the local chieftains of rival armies, and are turned into military pilots, though it is rather difficult to discover just what military flying they actually do. There is not a single Chinese pilot who is qualified to take passengers on the Vickers "Vimy" commercial aeroplanes and there is not likely to be one for a considerable time.

A good many of the so-called commercial aeroplanes have been seized by the assorted Tuchuns for use as military aeroplanes, but at the beginning of July there were still in the hands of the Pekin Government about twenty Avros, thirty "Vims" (that is to say the modernised version of the F.E.2d as redesigned by Vickers Ltd.), and about twenty "Vimy" commercials, some serviceable and some still not erected. There were also vast supplies of spare engines and spare parts for all types.

The old original Pekin Flying School at Nan Yuan has had to be closed down on account of interference by the local troops, who apparently did not approve of the so-called Government at Pekin. However, a new and apparently promising school has been started at Tsing Ho, about ten miles north of Pekin. One's informant says that if this school gets anything like a fair chance it ought to do well as the Pekin Government still has in its service two very good British instructors, Messrs. Jones and Campbell Orde, two American pilot instructors and three British mechanics, all of whom have done excellent work under the most difficult conditions.

None of the much-boomed commercial air lines have ever come into operation, partly owing to political opposition in the various provinces over which they were to operate and partly because of financial difficulties. The Government and the Aeronautical Department are said to be bankrupt and the internal administration of the Aeronautical Department is completely chaotic.

There is some satisfaction in knowing that so far as there is any Chinese aviation British machines and British instructors stand very high in the estimation of such Chinese as are capable of understanding the meaning of aviation. One's informant is considerably optimisitic in that he says that to his mind China is developing with extraordinary rapidity and that the country may pull itself together politically within the next four or five years.

Apparently one of the chief reasons for the failure of Chinese aviation is that the Chinese Government itself never really wanted to develop commercial aviation, and the foreign Powers, which of course means the Allies of the late war, will not let it develop military and naval aviation. It strikes one that this is somewhat of a mistake, because if the Chinese Government in power were allowed to develop its naval and military aviation properly with the help of British instructors the result would probably be that the said Government, having a real Air Force at its command, would soon bring the various Tuchuns to heel, break up their armies of brigands and impose something like peace on the unfortunate country.—C. G. G.

A LOST OPPORTUNITY.

[H. G. Hawker, Airman: His Life and Work. 319+xxii. By Muriel Hawker. Hutchinson & Co. Price 18s.]

The widow of the late Harry Hawker appears in this book to have missed a great opportunity of conferring a real benefit on aviation. After 173 pages devoted to more or less accurate stories of the comparatively early days of aviation in which Mr. Hawker was engaged, that is to say from the middle of 1921 until the outbreak of war—we come to the sentence: "Of Harry's work as test pilot with the Sopwith Aviation Company during the Great War the best record is contained in his personal log book or pilot's diary." After that there are four or five pages of really interesting notes on some of Hawker's experiences as a test pilot, both in England and in France. Then there are some 20 pages of purely personal matter, and after that 87 pages devoted to the abortive attempt to fly the Atlantic, an affair which so far as its intrinsic value was concerned might very well have been dealt with in a matter of half-a-dozen pages. Then there are some 24 pages devoted to his exploits as a motor racing driver, as which he was certainly not in the same class as he was as an aviator

If these pages had been devoted to extracts from his diary relating how he tested the various different types of Sopwith machines, how they differed from one another, where he found defects, and where he found direct advance on previous efforts, and if these pages had been elaborated by collateral stories collected from his various friends in the Sopwith firm who were directly concerned with those tests, an extraordinarily valuable contribution would have been made to the literature of aviation. As it is although there is much in the book which will be found of interest by those who remember Hawker in the early days of aviation the book is really of no value whatever to the rising generation of aviators.

It seems probable that Mrs. Hawker was assisted or advised in the writing of the book by somebody or somebodies whose views of Harry Hawker and his place in aviation were entirely distorted. He might have been made to appear what he was, a genuine hard-working student of aviation, one who contributed not a little to the progress of aviation, and who by his test work of the various types of Sopwith fighting machines did contribute very materially to the supremacy in the air which the Royal Flying Corps won in 1917, and maintained till the end of the war. As it is he appears chiefly as the hero of a variety of *Daily Mail* stunts. It is a very great pity.—C. G. G.

ERIC CLIFT.

Those who were concerned with aviation in its very early days will regret deeply to hear of the death of Eric Hollocombe Clift, of whom it may be said without dispute that he was the pioneer of aerial navigating instruments.

Not only was Eric Clift a pioneer of aviation but he was also a pioneer of motoring and his adventures with some of the early automobiles which endeavoured to travel fast would of themselves have made a book both interesting and astounding, for he was one of the hardest drivers of his day and one of the most reckless relying always on his quick eye and hand to get him out of a tight corner rather than on his judgment to keep him out of such places. And when he had barely escaped with his life from some amazing motor crash it was always worth while to hear him describe it, for he was of the stuff from which our early aviators were made. His head-on collision at fifty miles an hour with a car driven equally fast by one of the famous jockeys, one believes it was Dannie Maher, through meeting him in the dust-cloud of a car which Clift was chasing was only one of his adventures. The jockey was in hospital for some months but in some mysterious way Clift and his wife escaped with comparatively minor injuries though the two cars were completely eliminated.

His connection with aviation began somewhere about 1909 when his acute and ingenious mind realised that even if aeroplanes could not then fly across country there would come a time when they would need such things as compasses and speed indicators. He was always an extremely clever mechanic as was shown by his wonderful motor-boat engine so designed that practically every part of the engine except the crankshaft, pistons and cylinders could be replaced without stopping the engine.

The Clift compass was one believes the first ever put on the market for aeroplanes and the Cliff air-speed indicator, though not perhaps the first instrument designed to indicate air speeds, was almost certainly the first and one of the best of its type and one believes the first to use the Pitot tube. In fact before the outbreak of war it looked as if Eric Clift would have a monopoly of such little aircraft instrument trade as there was.

On the outbreak of war he went seriously into the business and soon established a very useful little factory. The business grew and grew but unfortunately Clift's health was not of the best and he was unable to stand the strain of running a factory and doing experimental work. Ultimately he sold the entire rights and good will of his business to S. Smith and Sons Ltd. who are to-day the best known of aeronautical instrument makers.

In those early days of the war Cliff did a large amount of experimental flying. He acquired an aeroplane purely for experimental purposes and himself tested all his instruments and modifications thereof in the air.

Later in the war his health became so bad that he had to give up even his experimental work and it was then found that he was suffering from tuberculosis. For the last few years he has managed to keep himself alive by living practically all his time on his yacht "Sheila."

Eric Clift was one of those people for whom one feels a sort of exasperated affection. He was always a most amusing companion, full of vivacity and apparently happily irresponsible when nothing important was on hand but able to possess himself in a tense calm when in any of the numerous tight corners which he encountered during his exciting career. The probability is that if he had lived he would have gone on inventing clever and useful things for aviation but in any case the world is the poorer for the loss of his keenness and enthusiasm.—C. G G.

TO THOSE INTERESTED IN THE **DH9** WE BEG TO ANNOUNCE THAT

WE CAN NOW OFFER AN

IMPROVED 1923 MODEL

ENGINED WITH EITHER

THE 240 H.P. SIDDELEY "PUMA" OR THE 350 H.P. SIDDELEY "JAGUAR."

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F-ADBP F-CMAJ

C.M.A. Air Lines is the British title of the Compagnie des Messageries Aériennes, whose head office is at 2, Rue Galilee, Paris. The Company was originally founded early in 1919, by M. Louis Breguet, for the transport of goods from Paris to Lille, the ground communications having been so much disturbed by the European War This line, which was the first commercial aviation service in the world, was soon extended to Brussels and the line from Paris to Brussels has been maintained by the Company ever since.

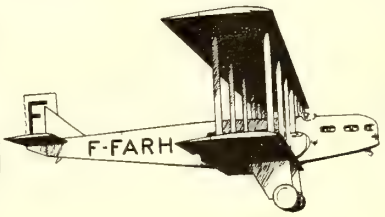
In September, 1919, a service between London and Paris was inaugurated in conjunction with Handley Page Transport, Ltd. This was originally operated three times a week each way, but later, when the two Companies separated, a daily service was commenced, which has now been extended to a thrice daily service.

By an arrangement with the Compagnie Générale Transatlantique a service is run to connect with the arrival and departure of this Company's sailings between Le Havre and New York. This is the first occasion on which a large shipping company has recognised the necessity of using commercial aviation in its transport policy.

The Company's service has now reduced the time of transit between London and Paris to two and a-half hours; between London and Le Touquet to one and a-quarter hours; between Paris and Le Touquet to one hours and between Brussels and Amsterdam to two hours A line has been inaugurated to run direct from London to Marseilles, calling at Paris and Lyons and connecting with the Steamship Lines to India and the East. This brings Marseilles within eight hours' reach of London and Lyons within six and a-half hours.

The C.M.A. Passenger Service is maintained by twin tractor Farman Goliath Biplanes, fitted with two 300-h.p. Renault Engines and with a seating capacity for 12 passengers, pilot and mechanic. This machine has a wing-span of 92 ft., a length of 49 ft. 6 in. and a height of 16 ft. Its cruising speed is 93 m.p.h. The freight, mail and newspaper services utilise the smaller type of single-engined Spad and Breguet.

The Compagnie des Messageries Aériennes is an association of Aerial Transport constructors for the study and application of aircraft, and among its Board of Directors appear the well-known names of Messrs Bleriot, Breguet, Caudron, Farman, Morane, Luquet de St. Germain and Renault.—*Extract from R.A.F. Year Book.*



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COMMERCIAL AERONAUTICS.

The London Terminal Aerodrome.

AIR LINE ARRIVALS AND DEPARTURES.

ANALYSIS OF FIGURES.

For week ending Dec 3rd .

LONDON—PARIS :

Handley Page Transport, Ltd., machines 5*, passengers 41: C.M.A. Air Lines, machines 6†, passengers 9. Cie. Grands Express Aeriens, machines 5*, passengers 14. Total, machines 16, passengers 64.

LONDON—COLOGNE :

Instone Air Line, Ltd., machines 6*, passengers 16.

MANCHESTER—LONDON—AMSTERDAM :

Daimler Airway, machines 15, passengers, Manchester-London, 14, London-Amsterdam 11.

LONDON—ROTTERDAM :

K.L.M., machines 12*, passengers 15.

SPECIAL MACHINES : 0.

Total number of trips by British machines : 26, carrying 82 passengers.

Total number of trips by foreign machines : 23, carry 38 passengers.

Trips per day.—Monday, 11; Tuesday, 3; Wednesday, 11; Thursday, 7; Friday, 11; Saturday, 6; Sunday, 0.

STATISTICS.

Machines, 49; Passengers, 120; Crews, 94; Total Personnel, 214.

Corresponding week last year :—

Machines, 19; Passengers, 13; Crews, 30; Total Personnel, 43.

Corresponding week, 1920 :—

Machines, 39; Passengers, 58; Crews, 45; Total Personnel, 103.

* These machines also carry loads of freight.

† Some machines are freighters only. C.M.A. Air Lines run an early morning machine carrying newspapers daily from Lympne to Paris.

NOTES OF THE WEEK.

A.D.C. Work.

On Monday at the Aircraft Disposal Company Capt. Stocken was testing a "Snipe" and on Tuesday he tried out another one and both he and Mr. Perry were up on Avros. The next day Mr. Perry tested an Avro and a "Snipe," and Capt. Stocken a Bristol "Fighter." This machine he had out again on Thursday and Mr. Perry was flying yet another Avro. On Friday Mr. Perry was flying round on the D.H.9a with a Rolls-Royce and side radiators lately returned from Belgium. Capt. Stocken after another test flight on the Bristol Fighter took it to Brussels.

The Under-Secretary's Visit.

His Grace the Duke of Sutherland, Under-Secretary of State for Air, paid his first official visit to Croydon Aerodrome during the week and was taken for a flight in the Napier-Bristol 10-seater. This is the same machine which was operated last year by Handley Page Transport.

She went back to Bristol some time ago and was completely overhauled, since when she has been retained by the Department of Civil Aviation as a spare. It looks very much as though she will now join the Napier-Westland and the Viking III and spend the twilight of her years in tranquillity merely being wheeled out onto the aerodrome for the periodical "white elephant shows." It is a pity because she is quite a good machine in her own way.

More Weather Reports.

Weather reports are now available from Deal, Grain and the North Foreland so that when the clouds are down onto the Kent hills a pilot can creep along the coast and come up the Thames Valley. One believes that this has not up to now been done except on one or two occasions probably on account of lack of reports. It should prove a useful alternative route especially for machines on the Belgium and Holland routes.

Handley Page Handlings.

One stated recently that the original Handley Page W8 G-EAPJ had returned to Cricklewood to be fitted with Rolls-Royce "Eagle IX.s." This is not quite correct. She is being fitted with ungeared "Eagle VIII.s" and should be finished in about three weeks from now.

The first machine fitted with a Handley Page slot-wing is likely to be seen at the aerodrome during the week. The latest type of "Hanley" torpedo machine with 450 h.p. Napier "Lion" engine is being flown to Paris by Mr. Wilcockson for the Aero Show and she will most probably land at Croydon for customs clearance.

Handley Page Transport Ltd. have unfortunately had to cease co-operating with Ogilvie and Partners Ltd. Owing to the difficulty of paying for expert advice out of the present reduced subsidy they have very regretfully had to cut themselves off temporarily at any rate from this valuable fount of sense and knowledge. Mr. Savage who has for some time been engineer-in-chief to the firm is now solely in charge of the Technical Department.

Instone Moves.

Some of the Instone Air Line pilots who had not already got the Vickers "Vulcan" on their licence were flying this machine during the week. Though the machines are not yet back on the service there are rumours to the effect that they may be in commission again shortly.

The "Instone Type C" machine referred to in these pages some time ago is to be practically a standard W.8b except that it is being altered to carry 14 passengers and much petrol. The new W.8c machine for Handley Page Transport Ltd. are to carry 16 passengers. So far only one machine has been ordered by the Instone Air Line from Handley Pages and that is due to be delivered by March 1st next.

Daimler Data.

The Daimler Airway still continue to do well on the Manchester service and Londoners can almost adjust their watches by the inward machine passing over West Kensington at 11.00 hrs. daily.

Mr. Hinchliffe suffered an annoying mishap on Saturday. When up for a test flight prior to leaving for Amsterdam his wireless aerial carried away. Somehow or other it came unwound in the air without his knowledge and the consequent fitting of a new aerial caused a slight delay. Had he started without the aerial, the machine would not have been covered by insurance.

Insurance Inhibitions.

There are so many circumstances under which aircraft fly when the insurance people do not cover them that some firms are wondering whether it is worth while insuring at all. If a machine crosses the Channel outside certain bounds it is not covered. If darkness overtakes it before it lands it is not covered. In fact for quite a lot of the exigencies which may arise and cause a crash it is not covered and yet a firm has to pay about one-third the cost of a machine annually as insurance premium.

For a firm like the Instone Line which has a large number of machines an enormous amount of the subsidy money must go in insurance premiums, but the Air Ministry insist that the machines which they sublet to the companies must be insured. Here would seem to be an overlarge drain on the resources of an air line.

A French Combine.

It is now almost certain that at the end of the year the French companies Grands Express and Messageries Aériennes will combine. Doubtless this will be an excellent move and the combine will then possess a fleet of over 30 Farmen "Goliaths." Presumably the Grands Express organisation will look after the passenger side of the business and the C.M.A. people will carry on with their work as the "Carter Paterson of the Air."

Commissariat Arrangements.

Mr. Lloyd who now rules over the destinies of the Trust House has arranged for the sale of luncheon baskets to air travellers. These cost only 3s. 6d. and are excellent value for the money. This is a move that should have been made by the Trust House two and a half years ago but until the arrival of Mr. and Mrs. Lloyd a few months ago the Trust House preferred to remain in tranquillity.

Personal Intelligence.

Capt. Baker and Commander Deacon have both now passed through the Admiralty compass course at Datchet and certified as expert in the swinging of the compass.

Messrs. Glasson, Davies and Chattaway will follow suit in the next two weeks.

D. Napier and Son Ltd. have closed down their depôt on the aerodrome and Mr. Hall to everyone's regret has severed his official connection with the firm and the aerodrome.—

—G. D.

Brooklands.

The Vickers works are fairly busy now, having several Air Ministry orders to execute and various machines to build for private firms, and one or two new designs are being transformed into machines.

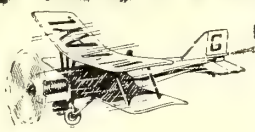
With regard to the machines for the Air Ministry one has, as usual, to be uncommunicative. As the first of the type has been photographed and described, however, one may say that the "Victoria" troop-carrier (two Napier "Lion" engines) has proved a great success, and the second machine was tested recently.

Two "Vulcans" have been shipped to Australia, and two "Viking IVs" are being sent to a firm in the Argentine. They have Rolls-Royce "Eagle" engines.

In about a fortnight's time the "Vixen," it is hoped, will be flown. This is a two-seater biplane with a Napier "Lion" engine, intended mainly for reconnaissance purposes, but able to be used for other branches of warfare. It has, or is expected to have, a top speed of approximately 160 m.p.h., and an astonishing rate of climb.

The Handasyde H.2 commercial monoplane, of which a number have been ordered for Australia, is now at Brooklands, and was taxying the other day. It has a Rolls-Royce "Eagle VIII." engine. One believes that there has been considerable difficulty in finding a pilot to fly it. Mr. Raynham has been away gliding and will be gliding for some time to come, and is therefore not available.—J. F. S.

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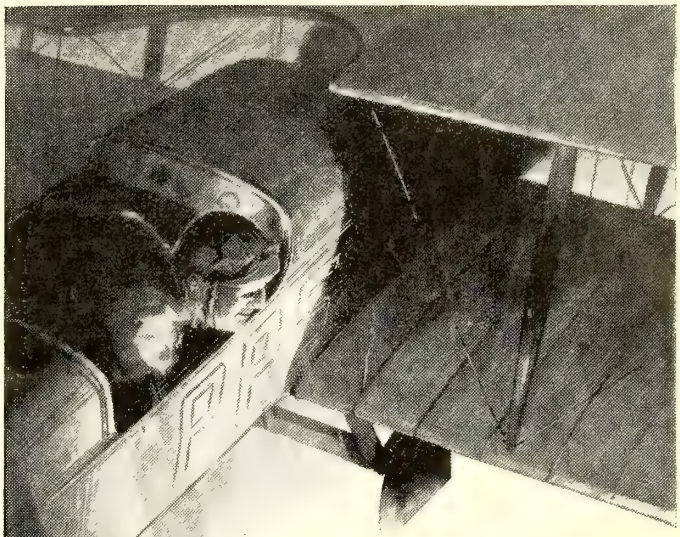
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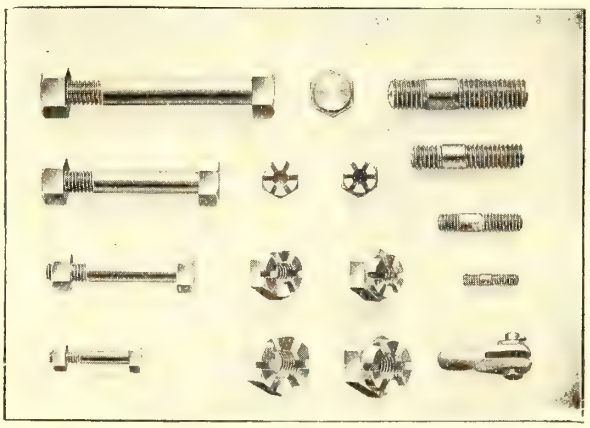
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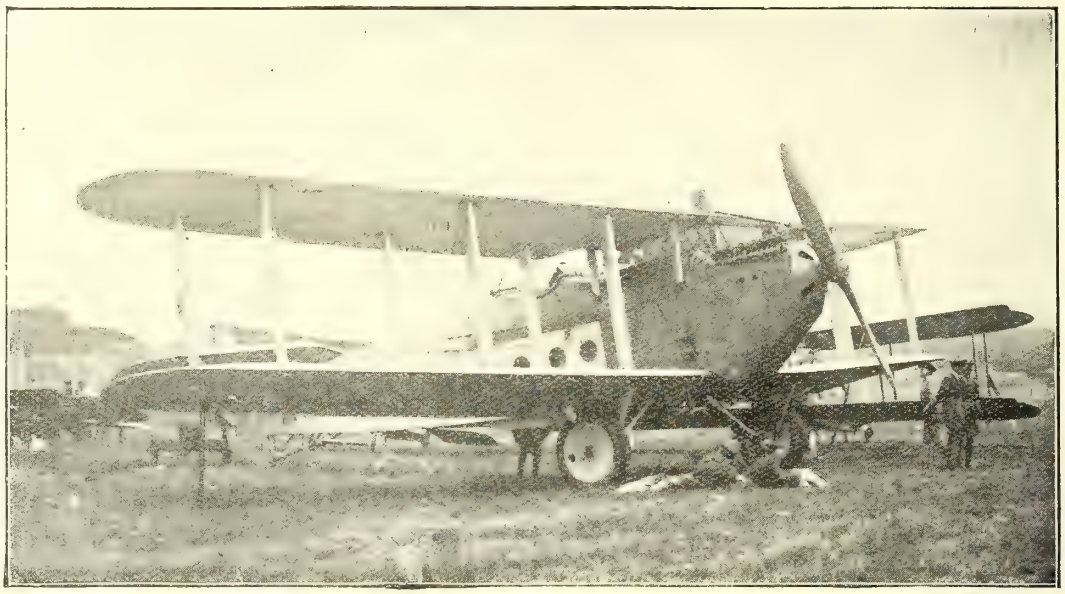
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ON THE R.A.F. STAFF COLLEGE.

Probably few people concerned with aviation know less about the R.A.F. Staff College than does the average officer or man of the R.A.F., yet not only the personnel of the R.A.F. but the Aircraft Industry and the politicians and all who take an intelligent interest in the progress of British Aviation, which means the maintenance of British Air Power, which means the existence of the British Empire, ought to know as much about the Staff College as possible. On the type of officer selected for training at the Staff College and on the kind of training he gets there depends the whole future of the Air Force And on the quality and quantity of intelligence with which the Air Force is handled in the future depends the safety of the Empire, which includes everything else affecting our public and private fortunes, seeing that the R.A.F. is now our First Line of Defence officially and naturally.

Therefore when recently by courtesy of the Air Ministry one was afforded the opportunity of visiting the Staff College one jumped at the chance of mitigating one's own painful ignorance concerning that very important establishment. And one hopes hereinafter to impart to others some idea, however sketchy, of the Staff College itself, what it does, and how it does it.

There are two ways of writing about any given subject. One is to take a header into it and emerge with fresh impressions in one's mouth without time to get them confused by imperfect acquisition of details. The other is to live in the subject long enough to learn all the details so that one gets them in their correct proportion. Which is why a mere globe-trotter's book on a foreign country is so often better than that of a man who has lived there a year or two though not so good as one by a man who has spent an official lifetime in the country. As concerns the Staff College one must perforce use the "Paget M.P." method, though one would dearly love to do a full Staff Course as a mental exercise.

The Habitat of the College.

Probably those who have read in the anti-R.A.F. press the moans about the expense of building this vast new establishment at Andover when we already have a perfectly good Naval Staff College at Greenwich and a more perfect and better Army Staff College at Camberley have visions (raised by a kinematographic impression of the North side of the main road through Camberley town—when driving with one eye on the look-out for policemen on the other side) of a vast mansion-like building embowered in graceful trees and artistic shrubs, with handsome gates of art-ironwork between noble stone columns and all the other impressive paraphernalia of a home fit for the brain-centre of the Empire's First Line of Defence.

Let them disabuse their minds forthwith. The R.A.F. Staff College is a range of brick and cement hutments on Andover Aerodrome, which hutments were during the War the quarters of the detachment of the Women's Royal Air Force allocated to the Andover Station and were more recently a disused part of the buildings belonging to No. 7 Group Headquarters. The trees and shrubs are conspicuous by their absence, for before it became an aerodrome this particular patch of land was known locally as Starveacre and deserved its name. And though the huts have been made quite comfortable inside the roofs leak and the windows and doors admit draughts with all that freedom which was so familiar to W.R.A.F. personnel during the War and was apparently a speciality of the methods of the Department of Works and Buildings, Air Ministry—better known in those days as the Hotel Bolo, W.C.2. Incidentally the Staff College has not even a separate mess. Its commissariat is run in conjunction with that of No. 7. Group. So even that slight extra expense is saved.

Thus the R.A.F. Staff College itself so far from being a home of sybaritic luxury erected at vast expense for the edification of budding brass-hats is in fact rather a lodging for stoic philosophers who may thus fittingly combine hard lying (physical) and high thinking and it has cost the British taxpayer nothing except the price of a few tables, chairs, carpets and book-cases. Which very important fact should certainly be made more public than is possible in the pages of this paper, limited as it is to those already favourably disposed towards the R.A.F.

The Old Army Staff.

During the recent War "the Staff" was one of the stock jokes of all the Services. A jibe at the expense of the Staff was as sure of a laugh as a mother-in-law or lodger joke was at the old-fashioned music-hall. Everybody judged the Staff by a few gilded youths or benevolent dug-outs who in the glory of red tabs and brass hats fulfilled more or less inefficiently the duties of a somewhat superior species of messenger-boy or commissionaire. Few people realise the wonderful work which was done by the Staff of the Old Army, the products of Camberley. Hardly anybody knew that the professional soldiers of Germany and France acknowledged grudgingly that English staff-work was the best in the War.

German staff-work was thorough so long as the fighting followed academic rules and then it fell to pieces for lack of initiative. French staff-work was brilliant from G.Q.G. (Grand Head Quarters) down to Corps Headquarters, but from the Division downwards, with some bright exceptions, it was chaotic. English staff-work, naturally with exceptions, was thoroughly sound and was run with that curiously stolid yet elastic common sense which is the making and salvation of our nation. When one considers that a Staff whose numbers and whose theory of staff-work were based on an Expeditionary Force of about 150,000 men managed to handle at home and in the field a total of 7,000,000 men by the simple process of intensively training a few thousands of civilians in the same staff methods which they themselves had learned at Camberley and handled those millions in a way which won the admiration of the soldiers of all the World one begins to realise how wonderful was the staff training of the Old Army.

Nothing so perfect in the way of troop movements has ever been done as the mobilisation and transport to France of the B.E.F., which had all been planned years before by the Staff at the War Office so that movement-orders for every unit lay in their own little pigeon-holes ready for use. Similarly, the mobilisation and transport to Europe of the Indian Army was equally amazing, yet few people know that when the order came the whole scheme of movements and embarkation was taken ready-made from a safe at Simla, where it had been deposited many years earlier bearing the signature of a certain Lieut.-Col. Douglas Haig, a staff officer who later became somewhat famous. And it is not very commonly known that when Verdun was nearly lost because the German command of the St. Mihiel salient cut off railway supplies and when the fortress was saved by the famous "endless chain" of motor lorries it was English staff officers from "Q" Department who worked out that historical piece of organisation.

The Reason for the R.A.F. Staff College.

It is in order that similar wonders may be worked by our First Line of Defence when the Great War comes that the R.A.F. Staff College has been brought into being. And one believes that the R.A.F. itself now recognises the value of staff-work.

It shows in all kinds of curious little ways. The phrase "Bad staff work" has become a catch-word among R.A.F. officers. One of them misses a train through mis-reading a time-table, it is bad staff-work. Another finds himself in a railway carriage without matches, it is bad "Q" staff-work. Another makes up a party for a dance and on arriving finds one girl too many, it is bad staff-work again. In fact any little thing that goes wrong through lack of foresight or lack of organisation is put down to bad staff-work. That is how staff-work should be regarded in big and little things alike.

The whole reason for the existence of the R.A.F. Staff College is to train selected officers in the habit of foresight and to teach them the principles of organisation. Whether it be "G" staff-work concerned with strategy and tactics and movements and operations, or whether it be "Q" staff-work concerned with supplies of machines and munitions and clothing and food, success depends on foresight and

organisation, which includes that kind of foresight which trains men to deal with sudden happenings for which no amount of foresight or organisation can provide. The motto of any staff college might well be, "What would you do if——?" The Staff exists to prepare for and provide against the innumerable ifs of war. The College exists to train men to think out the possible ifs.

The Directing Staff.

The R.A.F. Staff College is peculiarly fortunate in starting with Camberley as a precedent and as a basis on which to form itself and with a Directing Staff and Students all of whom have had war experience. The Air Force List gives the personnel, but as all readers may not have that useful book at hand perhaps one may be forgiven for putting into print the names of the officers concerned, seeing that this is of the nature of an historical occasion.

The Commandant is Air Commodore H. R. M. Brooke-Popham, C.B., C.M.G., D.S.O., A.F.C., an officer with war experience in South Africa as well as in France. He was one of the first Army officers to join the R.F.C. and he commanded No. 3 Squadron at Lark Hill till the outbreak of war when he handed over to Major John Salmond in order to go to France as "Q" chief with General David Henderson. Of his work during the Retreat from Mons the older R.F.C. people tell wonderful stories. Spare parts were hard to get at best early in the war, and during the retreat their acquisition involved work something akin to that of Moses in the Desert.

Disregarding the story of one officer who avers that he saw the "Q" chief sitting on a bank by the road-side at Le Câteau handing out sparking-plugs and valve-springs with one hand and chocolate and liver-pills with the other to the retreating squadrons one need only refer those in search of knowledge to the two great R.F.C. books, Maurice Baring's "R.F.C., H.Q." and James McCudden's "Five Years in the R.F.C." There they will find enough to show how and why at the end of the War General Brooke-Popham was still "Q" chief of the Royal Air Force with all its tens of thousands of officers and men. For all our munitioneers and profiteers—or because of them—the "Q" chief was still improving on the feats of Moses, and the R.A.F. was never short of supplies, though one believes that just a week before the Armistice the engine situation became so bad that even his confirmed optimism almost failed him.

When there is added to his war experience the fact that Air-Commodore Brooke-Popham did well at Camberley long before the R.F.C. existed, and so is one of the very few R.A.F. officers with *p.s.c.* after their names in the Air Force List, it is fairly evident why he is Commandant of the R.A.F. Staff College. Added to which he is a very able pilot who still enjoys flying for the sake of flying.

Next to him in seniority is Air-Commodore R. H. Clark-Hall, C.M.G., D.S.O., one of the very early R.N.A.S. pilots and a Naval officer who from the first days of flying worked for the full and proper co-operation of the Fleet and the Air Service. In the pre-war days one remembers him doing hair-raising experiments on a Short "pusher" seaplane with a two-inch quick-firing gun, a species of armament which has not even now come into use on aircraft. During the War he was always a sea-going aviator and was hardly ever ashore. He commanded the old *Ark Royal* with marked distinction in the Mediterranean and elsewhere, winning the sincere goodwill of all who served with him.

Next again in seniority is Group Capt. P. B. Joubert de la Ferté, C.M.G., D.S.O., also a pre-war R.F.C. officer, and formerly a Special Reserve Gunner. He went over-seas with the famous "First Four Squadrons" and after serving in France commanded a Wing in Egypt and Palestine. In 1917 he returned to France and in 1918 commanded that very joyous R.A.F. force in Italy with Lord Cavan's Army. Since the War he has done a course at Camberley and so has Staff College experience.

Following him in the list is Wing-Commander W. R. Freeman, D.S.O., M.C., another of the early R.F.C. people and an officer of the Regular Infantry before the War. He did very good work in France both as a fighting pilot and in command of squadrons and wings. He is one of the very few who was shot down in enemy territory and walked home.

Another former Naval officer, Wing-Commander C. H. K. Edmonds, D.S.O., O.B.E., is next. He, like Air-Commodore Clark-Hall, was a pre-war R.N.A.S. pilot and was also one of that select little band which assembled at Calshot for the Naval Review in July 1914 which proved to be the great mobilisation of the Fleet ordered by Mr. Churchill and Prince Louis of Battenberg which so successfully bottled the German Fleet in its harbours. Wing-Com. Edmonds has the peculiar distinction of being the first pilot to sink a ship with a torpedo dropped from an aircraft, a feat which he performed in the Marmora after having flown over the Gallipoli Peninsula (at the low part one believes remembering the machines of the period). Previously he had won his D.S.O. for the famous raid on Cuxhavn on Christmas Day 1914.

Next comes Squadron-Leader B. E. Sutton, D.S.O., O.B.E., M.C., a young officer who came direct to the R.F.C. from Oxford and that represents the University element among so many purely Service people. He, like those who were trained to war from their youth up, won considerable distinction on active service.

Last on the list is Flight-Lieutenant C. B. Dick-Cleland, an old soldier who joined the R.F.C. during the war. He is the Adjutant to the Staff College. He served in France with the famous 55 Squadron, first under General Salmond and then in the Independent Force R.A.F. under General Trenchard. Incidentally 55 has done itself rather well seeing that it has supplied two of the first course students to the College as well as the adjutant.

With such a list of varied experience and assorted types of ability among the Directing Staff it is little wonder that the Staff College is well run and that the students at this the first course feel that they are particularly favoured individuals.

The First Course Students.

It seems well also for historical and explanatory reasons to give a list of the students who have the distinction of forming this First Course. As in the case of the Directing Staff they have been selected from the Army and Navy Regular and Irregular, Home and Colonial, so as to collect all possible points of view.

The two senior officers are W/Cdrs. J. E. A. Baldwin, D.S.O., O.B.E. and R. E. C. Peirse, D.S.O., A.F.C. The former raised 55 Squadron, took it to France, commanded it with the Army and in the Independent Force till he became a Wing Commander, when 55 was still under him forming part of his Wing. He was a Hussar before the War. The latter was one of the early *pukka* Naval officers to come into the R.N.A.S. before the War and distinguished himself highly in Belgium and in the Mediterranean.

The Squadron-Leaders are,—B. E. Smythies, D.F.C., a Sapper and later R.F.C.; W. Sholto Douglas, M.C., D.F.C., a Gunner and R.F.C.; C. W. Pulford, O.B.E., A.F.C., a Naval Officer and R.N.A.S.; K. R. Park, M.C., D.F.C., a New Zealand Gunner and R.F.C.; W. A. McClaughry, D.S.O., M.C., D.F.C., Australian Infantry and R.F.C.; C. A. F. Portal, D.S.O., M.C., an Army despatch rider, a Sapper and R.F.C.; L. L. MacLean, an Infantryman and R.F.C.; H. S. Powell, M.C., another Infantryman and R.F.C.; and E. B. Beauman, who came into the R.N.A.S. from civil life early in the war, and was one of the late John Porte's pupils at Hendon in 1914.

The Flight Lieutenants are,—W. R. D. Acland, D.F.C., A.F.C., another R.N.A.S. officer; G. M. Lawson, M.C., Infantry and R.F.C.; R. M. Drummond, M.C., Australian Infantry and R.F.C.; N. W. Wadham, an Army Cyclist and R.F.C.; C. H. Hayward, R.N. Division and R.F.C.; H. S. Kerby, D.S.C., A.F.C., an R.N.A.S. offiser; J. B. Cole-Hamilton, an R.N. officer, later R.N.A.S.; E. B. C. Betts, D.S.C., D.F.C., an R.N.A.S. officer; and W. B. Farrington, D.S.O., Infantry and R.F.C., and incidentally another of 55 Squadron.

From this list it will be seen that the students as well as the Directing Staff have had most variegated experience, and judging by their decorations would seem to combine all the talents. One gathers that though students of this the First Course have been selected those for future courses will have to pass a qualifying examination. But this will be simply a qualifying examination and not competitive, which is an eminently sound idea for it will ensure a certain standard of general education without giving any advantage to the typical "competition-*wallah*" who is generally the worst possible kind of officer.

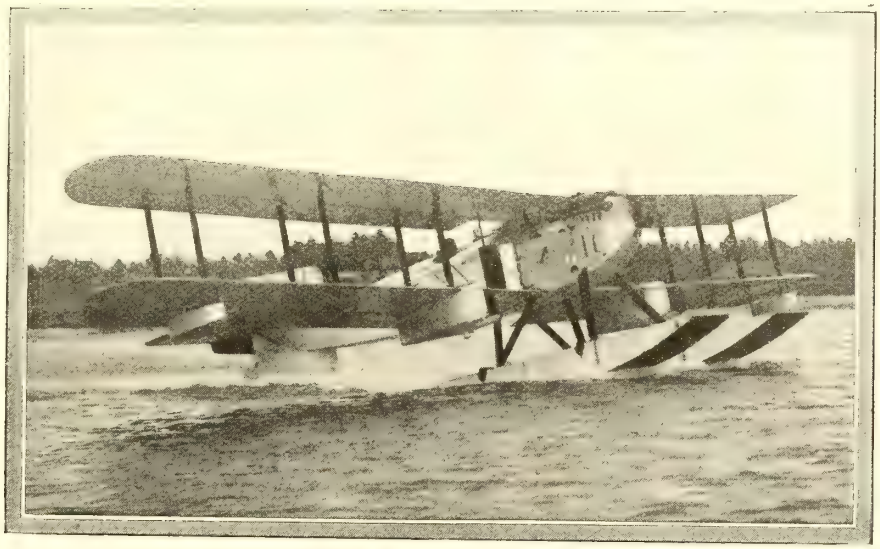
The Field of Study.

The field of study at the Staff College is of enormous scope, so enormous in fact that even in the two years of the course the students cannot possibly do more than acquire the habit of self-education. When they leave they will have learned how to learn rather than have learned what an efficient staff-officer ought to know.

An Official Memorandum says on this point:—"The course of study at the Staff College is at present devised with two objects in view, firstly to train officers in staff duties whether in peace or war; secondly to afford a general education which will serve as a sound foundation for the building up of a school of thought in the Royal Air Force. It aims at developing the habit of steady reading and thinking rather than at the acquisition of a mass of detail."

It is indeed well that not only the Staff but all officers of the R.A.F. should be taught to read intelligently and deeply. One has met many young and intelligent officers who take

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their profession seriously and yet have not learned to read seriously because since they left school at the beginning of the war 1914-18 they have read little except newspapers. The prophetic utterances on the "Warfare Made Easy" principle by Mr. Hilaire Belloc, Mr. Bottomley and others during that war did certainly provide entertainment for those who were not old enough to remember the work of Archibald Forbes, Frank Vizetelli, G. W. Steevens, and G. A. Ferrand, all now dead, or of the very much alive Edgar Wallace when war-correspondents in the Balkans, in Egypt, in the Soudan and in South Africa, but one hardly thinks that these later prophets were conducive to serious study of the art and science of war.

Many papers now publish serious articles on war by men of high standing such as the Honourable John Fortescue and Sir Frederick Maurice, but on the whole we have not yet returned to what Mr. David Whitelaw so wittily called "the *status quo ante Belloc.*" Therefore it is the more satisfactory to know that the art of reading is one of the chief subjects to be taught at the Staff College.

It is fairly obvious that an R.A.F. staff officer must know far more than a staff officer of the Army or Navy. He has to know all that an Army officer knows about handling men and stores on the ground, and though he does not have to learn all the complicated problems of staff work as between say brigade head-quarters and the firing-line he has his own corresponding problems as between brigade H.Q. and the formation in the air. But he also has to know enough about Army operations to be able to direct efficient co-operation with the Army. And likewise he has to know enough about the Navy's curious habits to direct co-operation with the Navy when the Navy consents or is obliged to co-operate with the Air Force. Which latter task is the more difficult because the Navy only thought of having a Staff about the middle of the War and has not yet developed the Staff Mind.

On this point the Memorandum says :—"Such details of Organisation and Administration, both Naval and Military will be taught as will ensure the effective co-operation of R.A.F. with other Services. The organisation of the various Dominion Forces and of the principal foreign Navies and Armies will be studied in general."

An Illuminating Phrase.

The Memorandum also says :—"The principles of Strategy and Tactics, both Naval and Military, will therefore be reviewed in relation to their historical development. Their application in special campaigns and in the war 1914-18 will be a consideration secondary to the lessons which the R.A.F. must draw from them in framing its own procedure and doctrine. The object of studying the lessons of the past is to foresee the requirements of future warfare. The methods of applying the principles of war to the situations of 1914-18 must not be accepted without regard to the modifications consequent on the development of inventions. Improvements and alterations in Armament may cause the war of the future to be of a character different from 1914-18 as that war differed in method from the Russo-Japanese War.'

As a purely personal matter one would like to thank the writer of the Memorandum for the phrase "the war 1914-18." It shall be adopted as the standard designation in future as the only alternative to the "late lamented war." It is to be noted that it is not called even "the European War," still less the "Great War" or the "World War" or the "War to end War" or the "War to make England fit for Heroes to Live in." Just "the war 1914-18."

The writer of the Memorandum evidently has the Staff Mind and has recognised that after all the war 1914-18 was only a rather big inter-tribal scrap. It was in fact nothing like as big in proportion or in effect as were the arguments of Theodoric the Amal with the Roman Empire and with his various Gothic and Frankish and Burgundian and Vandal neighbours. Still after all Theodoric kept his wars going for quite a long while so the war 1914-18 may be only the first phase of the war 1914-2000, with hectic interludes of peace. And, war being a biological necessity, it is well to remember that in spite of the war and the influenza epidemic (which killed far more people) the population of Europe is bigger now than it was in 1914.

Thus the little phrase "the war 1914-18" is singularly illuminating. It gives a key to the sane and healthy frame of mind in which the work of the Staff College is conducted. A proper sense of proportion is about the most valuable asset a leader of men can have. Oscar Wilde defined a cynic as a man who knows the price of everything and the value of nothing. A great leader, conversely, should know the value of everything and the price of nothing. And there you have a fairly accurate valuation of the war about which we were so greatly concerned for four short years.

The Scope of a Staff College.

The foregoing paragraph from the Memorandum raises the question of the scope of a Staff College. Should it exist to train staff officers or to train commanding officers? Can it do both? Many a great leader of men has been the worst possible staff officer and many a priceless chief of staff could not lead a platoon. But no great leader can succeed without a first-class staff.

It is probable that Foch would have been futile without Weygand. One has always believed that Alexander the Great owed his success to a staff trained under his father Philip of Macedon. Bonaparte certainly owed most of his victories to the staff work of old Royalist officers trained at Brienne, as de Bourrienne shows.

Yet a commanding officer should have a general knowledge of staff work and a staff officer should know something about commanding men. Therefore so long as the Staff College is devoted to "developing the habit of steady reading and thinking" it is probably well not to try to separate the two classes. Let them learn together how to read and think.

The Need for a War College.

But it is fairly evident that something higher than a Staff College is needed. Probably the right thing would be a War College at which selected officers who had passed the Staff Colleges of the three Services would study the science of War on the higher scale.

One believes that the Navy has an establishment which it

(Continued on Page 458.)



THE R.A.F. STAFF COLLEGE.—Here are seen the "eligible residences" at the Andover Air Station. The aeroplane sheds and workshops are out of the picture to the right. The buildings in the picture include No. 7 Group Head-quarters. The "Staff College" itself, about the expense of which there has been so much ill-informed criticism, is the second hutment alongside the road coming down from the top of the picture. The collection of cars in the foreground belongs to visitors to No. 7 Group's "At Home." They do not represent theextravagant transport arrangements of the R.A.F. the personnel of which depends chiefly on the local service of omnibuses.

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THE WEEKLY COMMENTARY.

There is described below the new Dornier all metal single seat fighter which has just been built and tested in Switzerland. It will be seen from the specification that this machine has a remarkably fine all round performance and that it affords no evidence that the skill of German designers has suffered from the limitations to their activities imposed by the Commission Aeronautique Inter-Alliée.

The conditions laid down by the Royal Aero Club for the competition for the Selfridge prize are given in a slightly parodied form (due to one of the Editorial humorists) in this issue. It should be noted that the times of day during which competitors may start are actually from 6.0 a.m. to 6 p.m. Official Time—that is Greenwich Time, British Summer Time, or Irish Time—which ever may be in force at the place and moment—and not 06.00 to 18.00 hours Official Time as stated.

THE DORNIER "FALKE" FIGHTER.

The Swiss factory at Romanshorn which now builds Dornier aircraft under licence have recently produced a single-seat fighter to Herr Dornier's design. This machine known as the "Falke," is a development of the Dornier D.1, which was the first cantilever machine to be built with wings covered with uncorrugated duralumin sheet.

The objects in view in the design of the "Falke" were the best possible fighting view for the pilot, short overall length, and a robust and simple undercarriage. The machine is a cantilever monoplane, of combined steel and duralumin construction, fitted with the 340 h.p. Wright (Hispano type) engine, and equipped with two machine guns.

The wing is carried above the fuselage on four vertical struts. The pilot sits behind the trailing edge of the wing, and his seat can be varied in height so that he may see either above or below the wing.

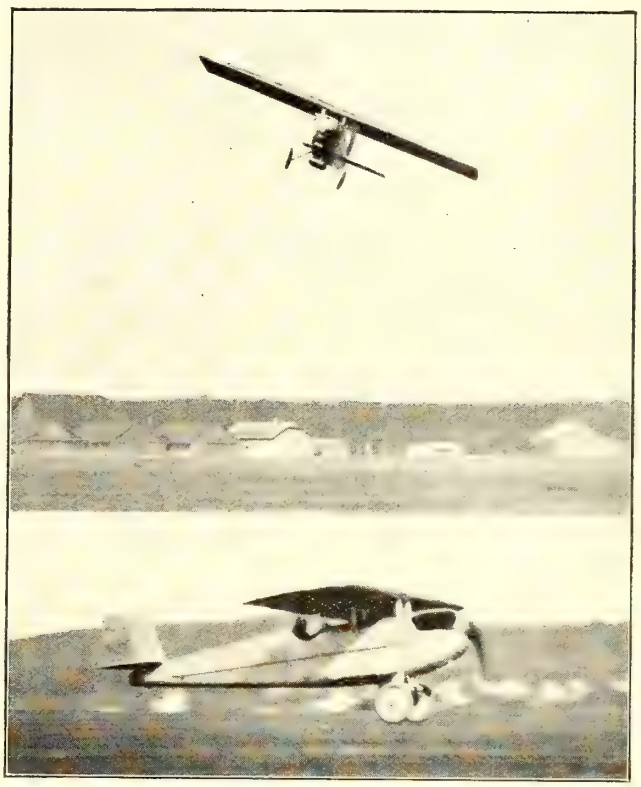
The wing is in one piece, built on steel spars, duralumin covered and is of generally similar construction to that of the Dornier "Komet" illustrated in THE AEROPLANE of September 27th. If it is desired to secure the minimum total weight, the wing behind the rear spar may be fabric covered.

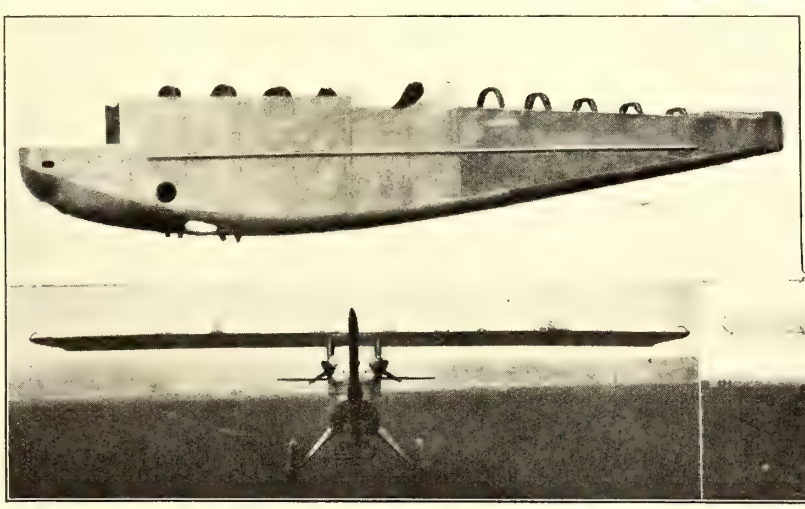
This wing is of a thick section and like the whole design has been developed as the result of extensive aerodynamic tests.

The fuselage is entirely of duralumin and is built up of plain sheets riveted to substantial formers. There is no internal cross-bracing of any kind.

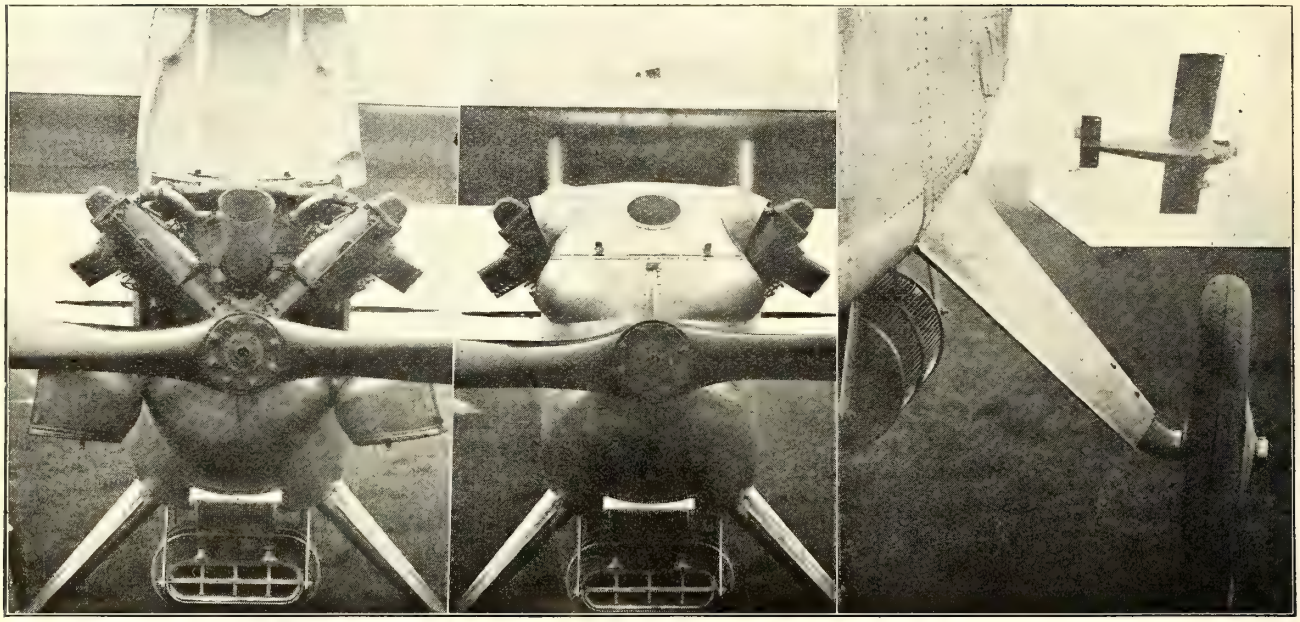
The undercarriage is rather unusual. It consists of a pair of steel tube legs, streamlined by duralumin sheet, pivoted at the fuselage and sprung internally. The ends of the tube are bent outwards to form stub axles for the wheels and there is no connection between the two legs. The wheels themselves are built up of duralumin discs riveted to the hub flanges.

Tail plane, elevators, fin and rudder are of composite steel





THE DORNIER "FALKE."—Above the machine is seen flying and taking off. Alongside the fuselage is shown, and below are two views of the complete machine.



THE DORNIER "FALKE."—On Left, view of nose with engine cowling open. Centre, a similar view with cowling in place. Right, the cantilever undercarriage. Inset, the machine in the air.

and duralumin construction and are entirely without external bracing.

The engine is very thoroughly cowled in, but the cowling is so arranged that it is instantly swung out of place and gives complete accessibility to the engine. Cooling is by a Lamblin radiator in this particular machine, but a different form of radiator is to be fitted in others of the type. An oil radiator is also fitted.

Two hours' petrol supply is carried in the petrol tank fitted between engine and the pilot's cockpit.

The main stress carrying members of the wings, etc., are of chrome-nickel steel with an ultimate strength of 75 kg. per square millimetre (50 tons sq. in.), and the whole structure is designed to give a load factor of 10 on normal flying load.

The machine is shown in a number of photographs reproduced here. The main dimensions are given in the specification. The performances are those realised on test at Dübendorf aerodrome near Zurich, under the observation of representatives of the F.A.I.

Specification of the Dornier "Falke."

Span 10 m. (32 ft. 10 in.)	Performance :—
Chord 2 m. (6 ft. 7 in.)	Maximum speed
Area ...20 sq. m. (215 sq. ft.)	265 km.h. (162 m.p.h.)
Length...7.43 m. (24 ft. 6 in.)	Landing speed
Height ...2.66 m. (8 ft. 9 in.)	85/90 km.h. (52/56 m.p.h.)
Area of tail plane.....	Climb to 1,000 m.
2.88 sq. m. (31 sq. ft.)	(3,280 ft.) 1.8 mins.
Total load including fuel	Climb to 3,000 m.
and pilot...360 kg. (792 lbs.)	(9,840 ft.) 6.5 mins.
Engine Wright 340 h.p.	Ceiling ...8,500/9,000 m.
	(28,000/20,500 ft.)

THE SELFRIDGE PRIZE.

The regulations for the One Thousand Guineas Prize offered by Selfridge and Co. Ltd. have now been drawn up by the Gliding Committee of the Royal Aero Club.

The prize will be awarded to the entrant of the machine which first covers a distance of fifty miles measured in a straight line in one uninterrupted flight. The competition will be open from January 1st to December 31st 1923 inclusive and will be subject to the usual Royal Aero Club rules and regulations.

The entrant and pilot must be British subjects and the machine must have been constructed in the British Isles. The entry fee is £5 and this together with the entry form must be sent to the Club at least seven clear days before any flight in the competition is made by the competitor.

The Royal Aero Club will appoint observers to control all starts in the competition. The expenses, if any, of the observer, must be borne by the competitor but in order to minimise such expenses the Club will, as far as is practicable, appoint an observer resident in or near the selected locality.

The competitor may select his own starting place which must be in the British Isles having previously sent a map marking the approximate starting place and course to be followed to the Club. Seven days then elapse (as they say in plays), and then the competitor is at liberty to start (if he can) at any time from this point (provided that the observer appointed by the Club be present) and the competitor is responsible for the observer being notified beforehand of any attempts and for his being present at the start.

All flights must be started between 06.00 hours and 18.00 hours,—official time. (Presumably official time means whatever particular school of thought has its own pet Parliamentary chronometrical Act in operation at the time.)

The Royal Aero Club will issue Log Sheets which must be carried by the pilot in all flights in the competition. The observer will fill up the starting certificates on the Log Sheets and hand this to the pilot prior to the start of any flight in the competition. The certificate will contain such particulars as will enable the Club to locate the exact position from which the start was made.

The pilot on landing must fill up the landing certificate on the Log Sheet which must contain such particulars as will enable the Club to locate the exact point at which the landing was made. The landing certificate must be signed as correct by the pilot (if competent) and two responsible persons present at the time of landing or, if no person who could reasonably be considered responsible be present, residents in the district where the landing was made.

The Log Sheet must be posted to the Club not more than 48 hours after the landing has taken place. (Presumably this period of 48 hours' grace is given to allow the pilot observers and friends to recover from the crash or from any celebrations rendered necessary as the result of the flight.)

In the event of the prize not being won, Selfridge and Co. Ltd. will present 500 guineas to the entrant of the machine which covers the longest distance during the year of not less than 25 miles measured in the species of line commonly but erroneously attributed to the bee in one uninterrupted flight, provided that the pilot has complied with all the above regulations.

A GLIDING MEETING IN AMERICA.

It is announced that a gliding meeting is to be held at Ormond-Daytona Beach Florida in the last week of January 1923. The meeting is to be international. The arrangements are in charge of the Aero Science Club of America, of Beach Building 125 East 23rd Street, New York. A considerable amount of prize money is already available, and more is expected.

The meeting is to be held on the sand dunes on the beach. These at present are about 27 ft. high, but it is expected that they will be built up to 50 ft. and be fitted with concave faces. It is hoped that soaring may be done over the sea.

Mr. Orville Wright is, it is stated, to be consulted in regard to the necessary measures to improve the ground conditions.

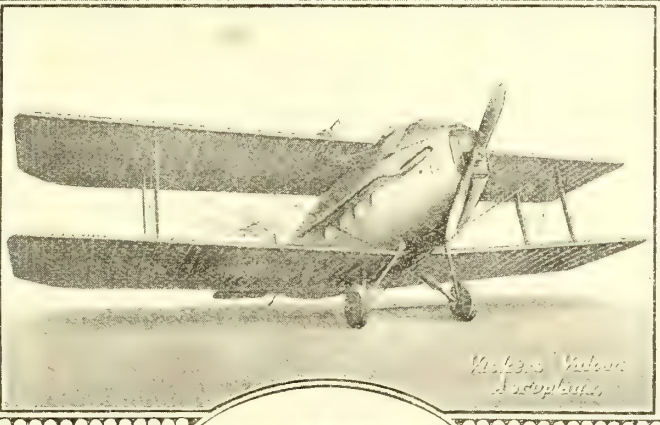
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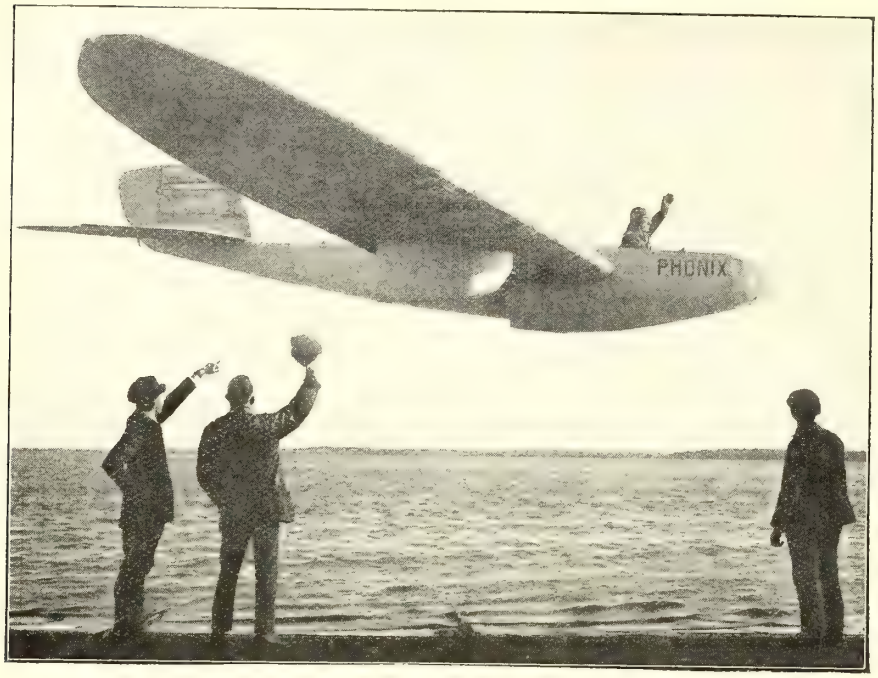
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THE SOARING SEAPLANE.—The photograph shows the flying-boat glider "Phœnix" built by the L.F.G. firm to the designs of Herr G. Baat during preliminary tests.

The machine was attached by a cable to a moored boat in a wind of 8/10 metres per sec. (15/18 m.p.h.) and it was found possible to kite it off the water. The cable was then slipped and the photograph was taken during the subsequent glide down.

These tests took place in a nearly land-locked inlet of the Baltic which accounts for the smoothness of the water.

INTERNATIONAL SPORTING AFFAIRS.

The annual Congress of the Fédération Aéronautique Internationale was held at Rome recently when the chief matter for discussion was the readmission of Germany to the International Federation. One gathers that the repesentative of the Royal Aero Club, Colonel Mervyn O'Gorman, C.B., had instructions from the Committee of the Club to give his full support to the readmission of our late enemy. This would be quite in accord with the best English traditions in sport and war.

Unfortunately, owing to opposition from obvious directions, the Congress was induced to put off the readmission of Germany until next year. However, it was decided by way of meeting the proposition halfway to give to each national aero club the power of admitting German pilots to or excluding them from competitions organised by the various clubs.

The position may be explained thus:—If Germany had been admitted fully to the Federation then German pilots would have had a legal right to fly in the Deutsch Cup Competition in France next year. As it is the French Aero Club will have the power to exclude them from the competition and to continue to make the said competition a parochial affair instead of truly international. On the other hand, the Royal Aero Club of Great Britain will have the power to accept entries of German pilots for such races as the Aerial Derby and possibly for the King's Cup if that should be an International event next year. Also presumably the Royal Aero Club as the holder of the Schneider Cup will be in a position to accept German entries for that competition and it will then be a matter for the French competitors to decide for themselves whether they will compete against German pilots or not.

The International position thus becomes very interesting. One judges, however, from Italian opinion that the admission of Germany to the International Federation in 1923 is a certainty.

The question of the position of the Michelin International Cup was also discussed, the Italian pilot Martineti claiming the Cup which was awarded by the Aero Club of France to the French pilot Poirée on the ground that Martinetti did not land on the specified aerodrome at Foggia. The fact seems to have been that as he was approaching Foggia a rainstorm burst and flooded the aerodrome, which became unsafe as a landing place, with the result that Martinetti landed at another aerodrome 20 miles away and on restarting flew over the Foggia aerodrome without landing there. The committee of the International Federation decided in favour of Martinetti.

The Aero Club of Rome and the various Italian firms organised an aerotechnical exhibition during the International Congress and numerous receptions and banquets were held in honour of the various visitors. Flying receptions were given also in their honour at the aerodromes of Ciampino and Centocelle near Rome. At the latter the new Italian airship O.S. made her maiden trip and conveyed a number of the Congressmen over Rome itself.

For the foregoing information one is indebted to Signor Alighiero Baciocchi, of the Compagnia di Navigazione Aerea, Rome.—C. G. G.

A MATTER OF EXCHANGE.

As already mentioned in this paper it is impossible, in the existing state of the exchange for German aeronautical enthusiasts to subscribe to British aeronautical papers. At the same time, owing to the considerable variation of the exchange, British subscribers to German papers are liable at any moment to be informed that the price in marks has been multiplied and that therefore their subscriptions have lapsed.

It is undoubtedly mutually to the advantage of British and German students of aeronautics that each should study the technical papers of the other's country. The best way of doing this seems to be for subscribers to British technical journals to exchange their copies when they have read them for copies of the German papers. Therefore one would be glad to hear from any readers of THE AEROPLANE who would like to arrange an exchange with German aeronautical students. Several such exchanges have already been arranged.

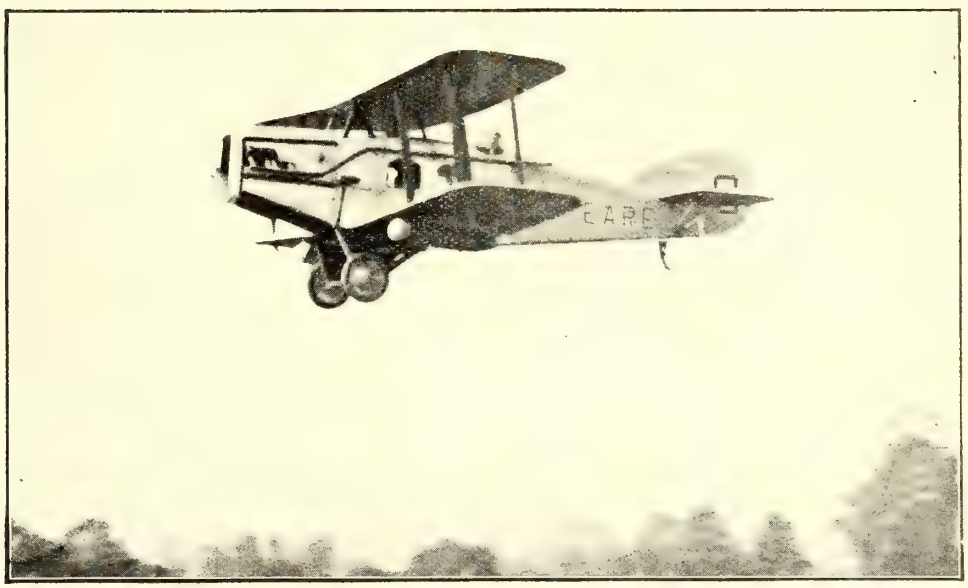


THE NEW RIESELER MONOPLANE.—Nearly two years ago a small sporting monoplane was designed and built by the Rieseler Sportflugzeugbau of Johannistal. The photograph reproduced represents the most recent model of this machine, fitted with folding wings and the new steel and aluminium-cylindered 30 h.p. Haacke engine. This machine is now in production by the Stahlwerk Mark Abteilung Flugzeugbau at Breslau.

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THE INSTITUTION OF AERONAUTICAL ENGINEERS.

On Friday December 15th Mr. O. T. Gnosspelius will read a paper on "Experimental Data without a Wind Channel" before the Institution of Aeronautical Engineers. The meeting takes place at the Engineers' Club, Coventry Street, at 6.30 p.m. In this paper Mr. Gnosspelius will describe the apparatus which he has designed for obtaining data as to the forces on aerofoils and other bodies in a simple and accurate manner. The paper is certain to be of interest and of considerable importance.

AIR MINISTRY NOTICE TO GROUND ENGINEERS.

No. 8. 1922.—FLEXIBLE RUBBER CONNACTIONS IN AIRCRAFT.

The attention of Ground Engineers is directed to the following information with regard to the maintenance of Flexible Rubber Connections as fitted to aircraft:—

1. The term "rubber joint" as used in this notice is to be taken to include all flexible rubber connections in aircraft or on aero engines, for oil, petrol or water.

2. Rubber joints fitted to engines or aircraft that have been stored for a period exceeding three months should be regarded as serving only as dust excluders immediately before the engine and/or aircraft first takes the air, all rubber joints throughout the machine should be renewed, the date of the renewal being entered in the aircraft and or engine Log Books.

3. New joints thus fitted may be considered serviceable for three months from the date of fitting. They should, however, during this period, be frequently examined and renewed if deterioration be detected.

4. After having been fitted for three months, all rubber joints for petrol should be considered under suspicion and should be frequently and carefully examined. Any signs of restricted flow, collection of particles of rubber in the filter and or such fittings as three-way petrol cocks, must be carefully watched for, as an indication of the condition of the rubber joint. At least once a month, a joint should be taken out of the petrol system and examined internally and for reduced adhesion between the plies. Immediately any such deterioration is detected, the whole of the joints in the petrol system should be replaced. In every case all rubber joints for petrol should be renewed six months after the date of fitting.

5. Similarly, joints in the oil and water systems should be specially examined after having been fitted for three months, and periodically removed, but, in these cases, they need not be renewed until the first signs of deterioration are apparent. In the water system the joints that usually deteriorate most rapidly are those through which the water flows at its highest temperature.

6. It is pointed out that deteriorated joints can always be detected by simple examination. Chemical and other special tests are only required to detect liability of deterioration.

7. Great care should be taken that the result of each examination and the date of renewal of all rubber joints, are recorded in the Log Books. Particular care should also be exercised that, when fitting rubber joints, R sharp edges at ends of pipes be removed before the rubber tubing is slipped on, as, unless this is done, damage to the interior of the tubing will result. Consequent on such damage, particles of rubber detected in the filters might create the impression that exceptionally rapid disintegration is taking place.

8. All rubber connections, when stored, should be kept in cool, dark and damp places.

9. *Cancellation.* Notice to Ground Engineers No. 2 of 1920 is hereby cancelled.

THE DE HAVILLAND AEROPLANE HIRE SERVICE.

For the month of November the total flying time of the de Havilland Aeroplane Hire Service was 31 hours and the following places were visited:—Manchester, Martlesham Heath, Beaumont Hamel, Paris, Nice, Amsterdam and Utrecht.

Stag Lane Aerodrome is looking very busy, new and additional buildings are being erected so as to bring the work of some of the various outstanding huts under one roof. This new workshop is being built onto the end of the erecting shops which were built early this year.

In aircraft work the de Havilland Aircraft Co. are building one new D.H.34 for Daimler Hire Ltd., reconditioning a number of D.H.9as for the Royal Air Force, and they are also turning out a batch of standard military D.H.9s for the Dutch Army for use in the Dutch East Indies. These machines are not reconditioned D.H.9s but brand new products and the first two are ready for acceptance looking very workmanlike in a uniform light sage-green finish.

With regard to a statement which appeared in last week's AEROPLANE it is pointed out that the charges for instruction at the Flying School are not £10 per hour. As a matter of interest the charges are given in full as perhaps it is not realised how easily and cheaply one can become an "intrepid birdman" in these days of financial stringency.

For beginners instruction is given on the D.H.6 and the charges are £6 per flying hour with instructor and £4 10s. when flying solus. When flying alone it is necessary for pupils to bear, or insure against, all risk of damage to the machine. Pupils therefore either sign an undertaking to the effect that they will be responsible for any damage caused to the machine (value £250), or they may pay £5 per hour additional to the normal charge for the hire of machine. In this case the pupil bears the first £10 of any damage caused to the machine. If no damage whatever be done during 10 hours' flying, or by the end of the time in which the pupil has been doing solos at the school, a return of £2 per hour is made to the pupil.

For advanced training or refresher courses for ex-pilots the same scheme is used and D.H.9s are employed. The charge for dual instruction is £8 per hour, and £6 10s. for solo flying plus the responsibility for damage to the machine (value £500). As with the beginners' course pupils may pay an additional £10 per hour when flying solus and if no damage be done in 10 hours' flying a return of £4 per hour is made to the pupil. The above schemes only applies to liability for damage to machines and does not cover the pupils themselves who must also make their own arrangements should they wish to cover their liability for third party risks.

A BRISTOL SUCCESS.

The following extract from *The Hartford Courant* (U.S.A.) of November 12th is of interest:—

"In the altitude race (at the Hartford Aviation Meeting) Capt. Leyson in his tiny Bristol monoplane made a record of 19,800 ft. eclipsing any New England records."

The winning Bristol machine was constructed as long ago as 1917, and saw war service before being sent to the U.S.A. In spite of this, and the fact that the engine fitted is only 100 h.p. it seems that this war veteran is still well ahead of the recently constructed American machines against which it had to compete.

RADIATION AND PENETRATION.

Knowing the manners and customs of the English one may assume that some day intelligent ideas on radiators will radiate so far as to penetrate the minds of the technical people at the Air Ministry and may even reach as far as some of our own radiator manufacturers in this country. When that happy day arrives we may perhaps find Lamblin Radiators fitted to aeroplanes of the R.A.F. and we may find some advanced British radiator manufacturer undertaking the manufacture of Lamblin Radiators. Meantime it is interesting to note that sensible ideas on radiation have reached very much farther from Paris than any part of England. For example, one learns from Italy (and not from the excellent Monsieur Lamblin himself) that the great Italian Ansaldo Company have snapped up the rights for the construction of Lamblin Radiators, which, to quote the Italian correspondent, "has indeed come, been seen and conquered." He adds there is "quite a war-time rush on them." Also one hears quite independently from a correspondent in Japan that the Mitsubishi Nainenki Kabushiki Kaisha (the Mitsubishi Internal Combustion Engine Co. Ltd.) has taken up the manufacture under licence of the Lamblin Radiator in Japan. At this rate we in this country may possibly take up the manufacture of Lamblin Radiators via America.

A USEFUL PUBLICATION.

S. Smith and Sons (M.A.) Ltd., of Cricklewood Works, N.W.2, famous for all sorts of instruments and gadgets, issued during the Motor Show a most interesting publication entitled "Roadcraft" which is a motoring miscellany containing much philosophy on the fitments of automobiles particularly in relation to the many excellent products of S. Smith and Sons Ltd. Interspersed among the more serious matters which in themselves are of very great interest are some extremely amusing short stories and anecdotes. From the purely aeronautical point of view the most interesting article is that of Mr. A. W. Hulbert on the Smith Aviation Equipment, but as every aviator is also a ground-motorist of some kind one can recommend the publication to all readers of this paper. Copies can be obtained gratis and post free on application.

AN AID TO CONVERSION.

Engineers of all kinds—and many others—often feel the need for some rapid method of converting English measurements into their metric equivalent or vice-versa with a fair degree of accuracy.

A very handy method of meeting this need has been devised by Mr. A. E. Bawtree, of 7, Manor Park Road, Sutton, Surrey. This consists of a small folder, of a size suitable for the pocket book, wherein are printed a series of parallel scales such for instance as miles and kilometres, pounds and kilogrammes, fluid ounces and cubic centimetres.

All that is necessary to effect the conversion from one set of units to the other is to look out the given known measure on its appropriate scale and opposite it will be found the equivalent in the other set of units. Naturally the accuracy with which it is possible to read the scales is limited by the length of the scales, but for very many purposes the accuracy obtainable by Mr. Bawtree's scales is ample.

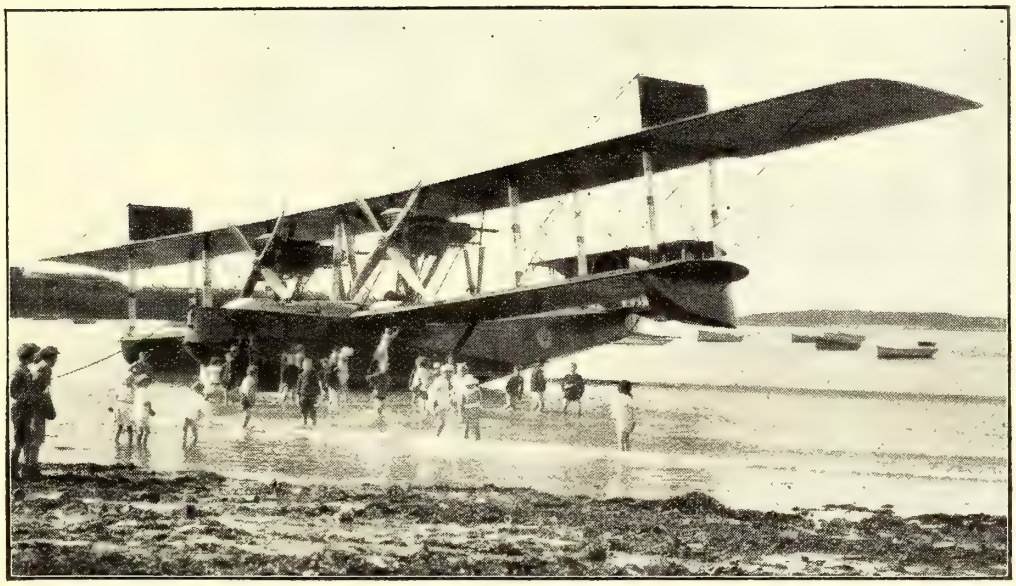
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(Continued from Page 448.)

calls a War College where post captains who have had more or less enough of sea-going spend a period on full pay in somnolescent contemplation of what Nelson might have done at Jutland or whether Jellicoe could have won at Trafalgar. But one doubts whether they have yet discussed seriously the Navy's part in seizing the Baltic and the Black Sea in the next war and covering the flanks of the Allied Western Armies from Dantzig to Trieste or stopping enemy aircraft over the North Sea or convoying troops and aircraft to Archangel for raids on the enemy's rear. So far as one can discover Naval staff training does not yet include the organisation of boats for debarking or embarking co-operating troops —in spite of the lessons of Gallipoli—so one can scarcely expect the Naval mind to have grasped the higher strategy.

Therefore it seems all the more important that the most able officers of the Army and Air Force Staff Colleges should together study the bigger problems of War and that some selected Naval officers should be appointed to learn from them. One commends the idea to those in High Places.

Staff Omniscience.

It is quite impossible in a short article of this kind to mention even a fraction of the number of subjects about which the Staff College students have to learn to learn, but a purposely jumbled list may convey some idea of the versatility of mind required. For example :—Imperial Strategy (by way of Parliamentary debates, the higher class magazines, history books and geography books) : Relation of civil economics and commerce and scientific progress to R.A.F. problems : The nature of war and its fundamental principles (by way of Clausewitz, in that abominable translation by Col. J. J. Graham, a conglomeration of the worst and least explanatory English ever put inside the covers of books, Hamley, Henderson and the light of history and common sense) : Naval strategy (purely by the light of nature one imagines, and not from anything that has ever been written, except perhaps Mahan and more recently Bywater the naval architect) : Naval Tactics (or how not to do it, one imagines) : Land strategy and tactics (an endless store of knowledge on which to draw) : Air Force organisation (records of bitter experience—including the Air Ministry, civil aviation, Law and Courts Martial, finance and storekeeping, signalling, sanitation, etc., etc.) : Supply and Lines of Communication (references to R.A.S.C., quartermasters, *embusqués,* invalids, skilled technicians, all mixed up) : Transport (railways, steamships, how to circumvent the Navy, how to deal with railway strikes, air transport and so on) : Staff Duties (writing, correspondence, précis, reports, appreciations of military situations, office organisation, in fact everything from issuing operation orders for a decisive battle down to how to disentangle a skein of red tape) : Secret Service and Intelligence (spies, counter-spies, collecting information from the press, discriminating between intelligent and unintelligent journalism, doping the press—more politely called " propaganda "—finding the lady, tabulating figures from enemy and allied reports to find out which is the least truthful, and so forth) : Peace Settlements (presumably a study of all the world's broken treaties, with special reference to *Perfide Albion* and Professor Oman's little essay on the characteristics of the Franks). Those are just a few headings, with one's own explanatory remarks in brackets, from the memorandum on the Course of Study. No wonder the students were selected.

A Conference in Being.

The actual " class work " so-to-speak of the students takes place in the morning and the rest of the day is for their individual studies. On the day of one's visit a conference was being held on re-forming the official " Operations Manual," a task somewhat analogous one imagines to the compilation of the authorised version of the Bible under James I. The students were divided into groups at the beginning of the Course. Each group has been revising the text of the Manual and the chosen representatives of each group meet at intervals and each sets forth the opinions of his group. One was privileged to listen to one of these latter conferences.

As a result one has a very high opinion of the selected students. The suggestions for alteration, emendation and rearrangement were lucidly put and showed literary ability as well as careful thought and practical knowledge. The origin of the Manual seems "wropt in mystery," like that of the Pentateuch, but it is written in official jargon (with adjective) which would have caused acute agony to the late Sir Walter Raleigh. Some of it is nearly as bad as Graham's Clausewitz.

Split infinitives, terminal prepositions, adverbs of time used as conjunctions, and other abominations complicate a stiltedly turgid style which appears to result from an effort to combine Navy and Army compilations of a similar nature. If the conference which one attended is allowed to put through its revisions without their being edited back into the original jargon at the Air Ministry there seems a sporting chance of the resultant Manual being useful, readable, and informative.

This work is at the same time of permanent instructive value to the whole Air Force and educative to the students who are doing the revision. And it would seem to be interminable, for students of future courses can revise other manuals and in due time each revised manual can itself be revised in the light of the experience of later students.

Toujours Les Conferences.

Besides this definitely constructive work conferences have been held during the preceding term on the following subjects :—Fighting in the air : Egypt : Escorts to bombing machines : Single and two-seater fighters : Attack on ships from the air : The course of instruction at the Staff College : and Staff College entrance examinations. And for the present term the subjects are :—The Manual of Operations (already mentioned) : Attack on ground troops : Air fighting in fleet actions : Fighting efficiency in the air from the medical point of view : and Requirements of a fighting aeroplane. All these are subjects of which the students have had personal experience and on which they have strong opinions. The results of the conferences, if printed, would be of high value.

Another interesting exercise is that each student during his course has to deliver a lecture to the rest and to the Directing Staff. The subjects are left more or less to the choice of the lecturer and they are very varied. Thus one finds among many others :—" Bombing Forecast from experience in the Independent Force " by W/Cdr. Baldwin : " Night Flying " by S/Ldr. McClaughry : " Topography and Meteorology of the North West Frontier of India and Afghanistan and its effect on War " by S/Ldr. MacLean : " Anti-Submarine Patrolling by Aircraft " by S/Ldr. Beauman : " Napoleon " by F/Lt. Farrington : and " Alexander the Great and his March to India " by F/Lt. Wadham—one wonders whether the two last-mentioned paid suitable attention to the effects of " Q." and " G. " staff work on the careers of their subjects. These lectures appear to have been very instructive.

Exercises at Home and Abroad.

Furthermore the students have had to write exercises or essays on such subjects as :—" Description of work in a unit of R.A.F." : " Writing a letter from Area H.Q. to Units " : " Writing an Operation Order " : " Drafting a Routine Order." And there are outdoor exercises which include (a) Making a map of a new aerodrome and surrounding country showing traffic arrangements. (b) Reporting on the site for a temporary seaplane base. (c) Working out the Amesbury tactical scheme. (d) The Newbury staff exercise. These outdoor exercises are a fine test of intelligence and initiative.

Also there are visits to places away from Andover, as for example to see the R.A.F. torpedo demonstration against the Atlantic Fleet; to St. Pancras to study railway organisation; to the Experimental Station, Isle of Grain; to the Royal Aircraft Establishment at Farnborough; to an Artillery practice camp; to the School of Chemical Warfare; to the Tank Centre; to the N.P.L.; to the Siddeley Aircraft Works; and to the Naval Staff College—which last coming at the end of the course will doubtless prove a pleasant relaxation after having had to understand so many really difficult subjects.

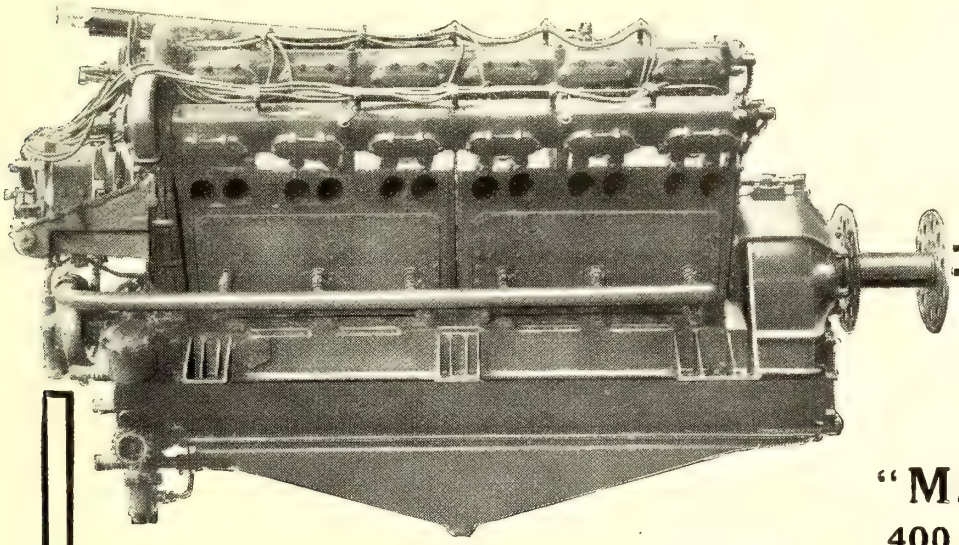
Furthermore there are lectures by the Directing Staff and by visiting lecturers. For example,—Captain Turle, R.N., on " The Battle of Jutland " : Colonel Blandy (Director of Communications) on " Signal Organisation in the R.A.F." : Group Capt. Joubert on " Palestine " : Group Capt. Holt on " Experiences in China " : and Lord Hugh Cecil on " The League of Nations," which last one gathers was hugely entertaining. Also there was a lecture by Mr. Bramley, a " labour leader," intended to give the student an insight into labour problems. Apparently his lecture was not very instructive, but he was quite adroit at answering questions afterwards.

Bright Prospects.

Those who are inclined to scoff at The Staff will probably be surprised to hear that the Course includes a considerable amount of flying by way of " refreshers " and that it will probably include a good deal more. It is hoped on the best authority that before long when a student expresses strong opinions on matters or methods of flying he will be asked to go aloft and demonstrate his theories in practice. And it is possible that after a conference on say fighting tactics or formation flying all the conferenciers will forthwith take to the air and practice what they preach. The idea has much to recommend it.

For the next course it is intended that there should be attached to the Staff College for instruction officers of the Royal Australian Air Force and of the Canadian Air Force as well as two English Army officers and two R.N. officers. These should also contribute materially to the brighter Staff College movement.

Taking it all round it may be realised that by the time an officer has passed through Andover he will have a very useful working knowledge of all that goes to make a first class Air Force in being. And above all he will have acquired that most useful of all forms of knowledge the certainty that the more one knows the more one knows one does not know.—C. G. G.



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"MANITOU" ..	300 h.p. 12-cylinder	"COSSACK" ..	350 h.p. 12-cylinder
"MATABELE" ..	400 h.p. 12-cylinder	"SIKH"	500 h.p. 6-cylinder

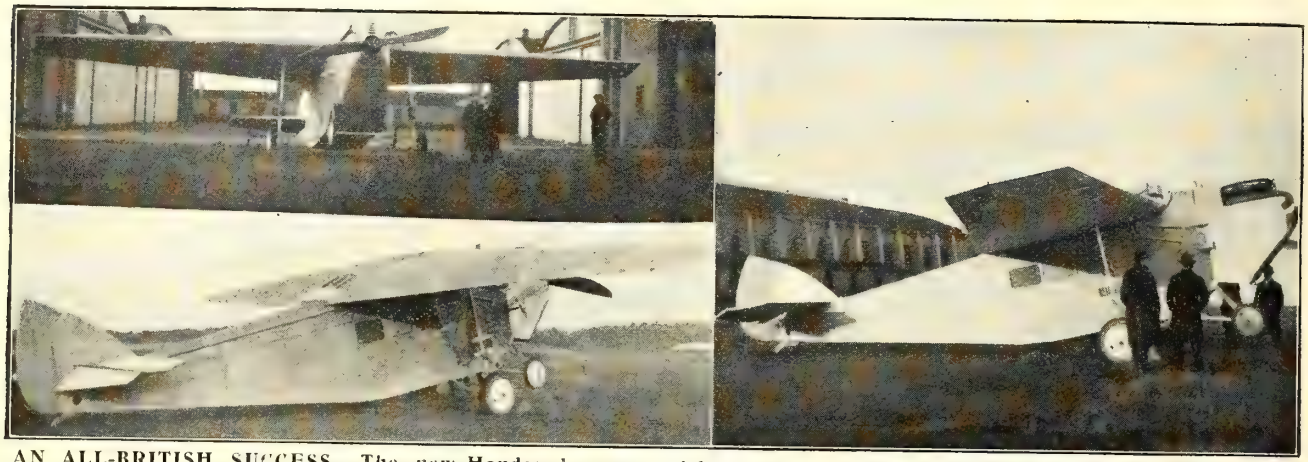
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THE HANDASYDE MONOPLANE.



AN ALL-BRITISH SUCCESS.—The new Handasyde commercial monoplane with a 360 h.p. Rolls-Royce "Eagle VIII" which Mr. Frank Courtney tested successfully at Brooklands on Saturday.

It is now some eight years since a monoplane designed by Mr. G. H. Handasyde was seen flying at Brooklands. But on Saturday Mr. F. T. Courtney took the new Commercial Handasyde "H.2" into the air for the first time. To those who remembered the old "Martinsyde" flown by Messrs. Gilmour, Sopwith, Gordon Bell and others it seemed as though it were the old familiar machine with the slim body which had grown remarkably corpulent during the eight years of its inactivity.

But although the "H.2" bears a remarkable likeness to its ancestors it is indeed a very different machine as will be seen from the accompanying photographs.

It is the first power-driven machine turned out by the Handasyde Aircraft Company, formed by Mr. Handasyde who when he left his previous firm formed the present company of which he is chairman.

The new machine is in very many ways remarkable. With an old type of 350 h.p. "Eagle VIII." Rolls-Royce it can carry six passengers in addition to the pilot at a top speed of 120 m.p.h.

The wing, fuselage, rudder tail-plane and elevator are all covered with three-ply wood. The undercarriage is attached to the main spar of the wing. The general particulars of the machine were described in THE AEROPLANE just over a year ago.

Mr. Frank Courtney had the machine out first of all the week before last and got in some taxying and some straight flights.

On Wednesday of last week he did some further taxying but owing to the strength and direction of the wind which was blowing dead across the aerodrome and owing to the fact that several horses belonging to the engine were away he did not take it off.

There is an enormous amount to be said for Mr. Courtney's method of testing. Instead of hurtling straight off into the atmosphere he keeps the machine taxying on the ground until he knows instinctively where all the various gadgets such as throttle, etc., are. He then takes it off for straights until he has satisfied himself that the machine answers its various controls with satisfaction.

He is then in a position to take it into the air knowing that it will fly and be controllable. Thus the risk of a crash the cost of which is out of all proportion to the slight gain in time is reduced and naturally enough the insurance premium is less. One is of opinion and the majority will agree that many machines flying to-day would be better had the test pilot been more severe in his criticisms of the machine.

To return to the point,—On Saturday Mr. Courtney had the machine out again about 13.00 hrs. when most of the missing horses had been restored to the engine. Visibility was not too good and so the pilot decided to do some straights first. The machine got off well in these but she appeared to run rather far on landing and on the third attempt she ran into a fox hole in vacant possession and had to be dug out.

By this time the fog had cleared and so Mr. Courtney decided to make an extended flight. He started from the Byfleet end and took off in about seven seconds. He climbed quickly and passed out over the track at the Weybridge end at a height of about 500 ft. He made several circuits and the machine appeared to be very controllable. After nearly 10 minutes he made a perfect landing at about 50 m.p.h.

He said that the machine was very good and that the system of control made her astonishingly light to handle for so big a machine. He could have landed slower but he brought her in fast in case she showed symptoms of lack of control at low speeds such as have occurred in other similar types. Happily there was no sign of this, and the machine appears to be all than can be desired.—G. D.

ANOTHER VIEW OF THE PAPER QUESTION.

controversy is of distinct interest :—

Sir,—Referring to your article in this week's AEROPLANE, "On passengers and papers," there are one or two observations to be made.

1. Although "the biggest distributors of English Newspapers in France" arranged on April 18th to dispatch a daily consignment of 300 lbs. to Paris, they were following the example of the largest French distributors, who, after negotiating the previous Winter, commenced a fortnight previously, to send by C.M.A. 700 lbs. daily each way.

2. The French subsidies you mention refer to Paris—Croydon and not Paris—Lympne and are governed by regulations which, by reason of the reduced mileage and unprofitable return, impoverish their alleged munificence.

3. The question is really one of Aircraft. The only two machines on the present services which can carry the required weight are the "W.8." and the "Goliath." The only

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C.M.A Air Lines is the British title of the Compagnie des Messageries Aériennes, whose head office is at 32, Haymarket, London, S.W.1. The Company was originally founded in 1919, by M. Louis Breguet, for the transport of goods from Paris to Lille, the Breguet, for the transport of having been so much disturbed by ground communications in the world, which was the first commercial aviation service from Paris to Brussels has been maintained by the Company ever since.

In September, 1919, a service between London and Paris was inaugurated in conjunction with Handley Page Transport, Ltd. This was originally operated three times a week each way, but later, when the two Companies separated, a daily service was commenced, which has now been extended to a thrice daily service.

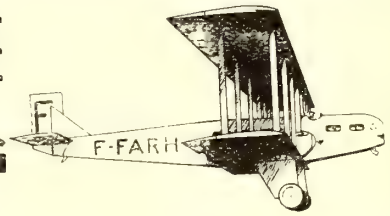
By an arrangement with the Compagnie Générale Transatlantique a service is run to connect with the arrival and departure of this Company's sailings between Le Havre and New York. This is the first occasion on which a large shipping company has recognised the necessity of using commercial aviation in its transport policy.

The Company's service has now reduced the time of transit between London and Paris to two and a-half hours; between London and Le Touquet to one and a-quarter hours; between Paris and Le Touquet to one hours and between Brussels and Amsterdam to two hours and a-quarter hours; between Paris and Brussels to two hours. A line has been inaugurated to run direct from London to Marseilles, calling at Paris and Lyons and connecting with the Steamship Lines to India and the East. This brings Marseilles within eight hours' reach of London and Lyons within six and a-half hours.

The C.M.A Passenger Service is maintained by twin tractor Farman Goliath Biplanes, fitted with two 300-h.p Renault Engines and with a seating capacity for 12 passengers, pilot and mechanic. This machine has a wing-span of 92 ft, a length of 49 ft. 6 in. and a height of 16 ft. Its cruising speed is 93 m.p.h. The freight, mail and newspaper services utilise the smaller type of single-engined Spad and Breguet.

The Compagnie des Messageries Aériennes is an association of aircraft constructors for the study and application of Aerial Transport, and among its Board of Directors appear the well-known names of Messrs. Pleriot, Breguet, Caudron, Farman, Morane, Luquet de St. Germain and Renault.—*Extract from R.Ae.C. Year Book.*

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commercial proposition, the "Goliath"—the really wonderful efficiency of the "W.8." being counteracted by its high running cost.

4. A further difficulty of a British Line running between Lympne and Paris is the question of upkeep, its terminal workshops being out of this route.

5. Your criticism regarding C.M.A. service during the "first fourteen days of October" confirms the policy of Business *v.* Sport. Records show that each time Daimler left before 08.00, C.M.A. "also ran." As it happened, the British machine was usually able to start between ten and twelve, the British fog patriotically lifting in time, but C.M.A. Croydon had instructions to rail their newspapers if flying was impossible before 08.00, and thus *ensure* arrival same day.

To conclude, may I suggest that if France likes to buy English newspapers, it does not appear unreasonable that they should be transported by the French line which from the beginning of Civil Aviation has specialised in freight, and which, notwithstanding certain uncertain statistics, has always carried the major part of this traffic.

These few observations to so well-informed an article, added to my thanks for the unbiased views you display regarding the Aerial Transport Company I represent will complete a very fair statement of this controversy.

December 8th, 1922. (Signed) P. Grosfils.

FOR THE FRENCH AERO SHOW.

Visitors to the Paris Aero Show who want to be within easy reach of the Grand Palais are recommended to stay at the Hotel Avenida, 41, Rue du Colisée, Paris. The hotel is today one of the most comfortable in Paris. The prices are quite moderate compared with the big hotels either in the Opera district or actually in the Champs Elysées.

AIRCRAFT IN PARLIAMENT.

In a written answer on December 7th, in reply to a question by Sir H. Brittain Sir Samuel Hoare said that the greatest mileage accomplished up to November 30th by a British Commercial aeroplane in regular cross-Channel service is 100,393 miles without overhaul. The aeroplane in question is still in perfect condition but the engines have been changed constantly during the period in which this mileage has been achieved.

[This refers to the Daimler Airway's G-EBBS,—a D.H.34 with Napier "Lion" engine. The changing of the engine has never been due to necessity but is simply part of the regular routine by which the engine is taken out and cleaned at certain stated periods whether it wants it or not. A wonderful thing about this performance is that neither the fabric nor the Cellon dope which protects it show the slightest signs of wear and tear.—Ed.]

COMMERCIAL AERONAUTICS.

The London Terminal Aerodrome.

AIR LINE ARRIVALS AND DEPARTURES.

ANALYSIS OF FIGURES.

For week ending Dec. 10th.

London—Paris:

Handley Page Transport, Ltd., machines 6*, passengers 34. C.M.A. Air Lines, machines 9†, passengers 5. Cie. Grands Express Aeriens, machines 5*, passengers 7. Total machines 20, passengers 45.

London—Cologne:

Instone Air Line, Ltd., machines 8*, passengers 18.

Manchester—London—Amsterdam:

Daimler Airway, machines 18, passengers, Machester-London, 38. London-Amsterdam 10.

London—Rotterdam:

K.L.M., machines 12*, passengers 17.

Special Machines: Surrey Flying Services, 2 machines, 1 passenger

Total number of trips by British machines: 34, carrying 101 pas.

Total number of trips by foreign machines: 26, carrying 29 pas

Trips per day.—Monday, 6; Tuesday, 12; Wednesday 12; Thursday, 14; Friday, 9; Saturday, 7; Sunday, 0.

Statistics.

Machines, 60; Passengers, 130; Crews, 116; Total Personnel, 246.

Corresponding week last year:—

Machines, 29; Passengers, 36; Crews, 49; Total Personnel, 85.

Corresponding week, 1920:—

Machines, 22; Passengers, 33; Crews, 28; Total Personnel 61.

* These machines also carry loads of freight

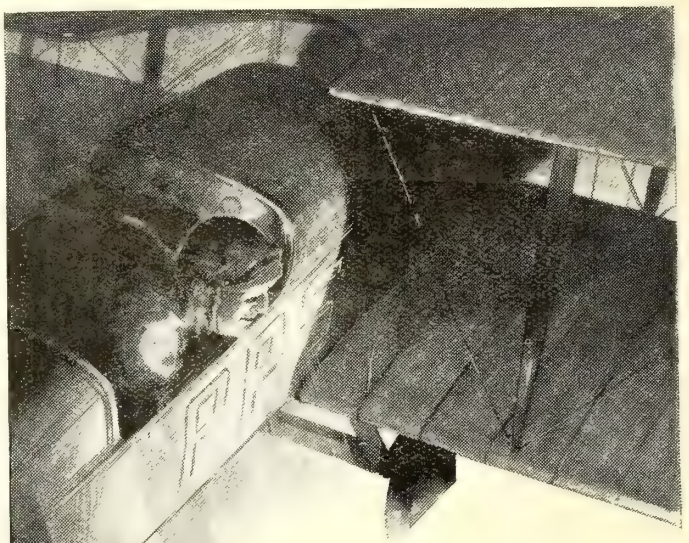
† Some machines are freighters only. C.M.A. Air Lines run an early morning machine carrying newspapers daily from Lympne to Paris.



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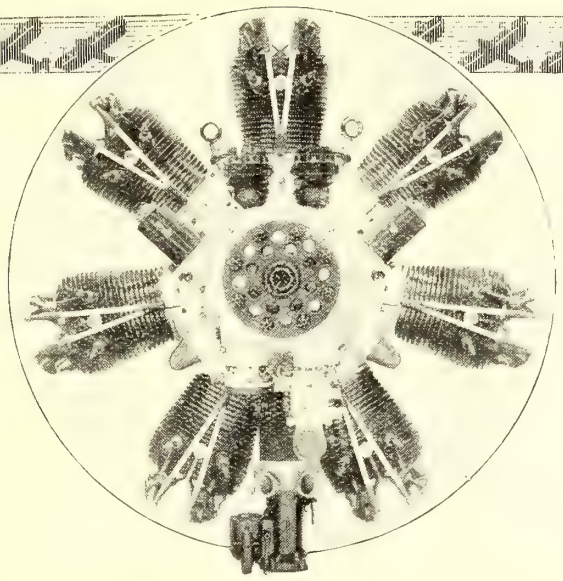
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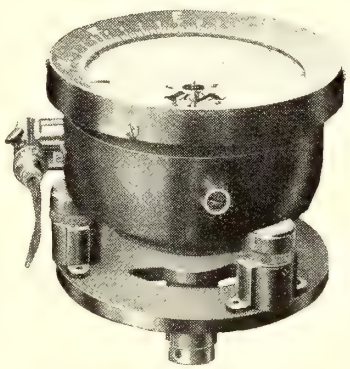
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Second Place was gained by Mr. R. A. de H. Haig, flying a Bristol Bullet machine, equipped with a 440 H.P. Bristol Jupiter engine and a **B.T.H. A.V. 9 Magneto.**

Third Place was secured by Mr. F. P. Raynham, in a Martinsyde F. 6 machine, equipped with a 200 H.P. Wolseley Viper engine and a **B.T.H. A.V. 8 Magneto.**

B.T.H. Magnetos were also fitted to the machines gaining **Second, Third** and **Fourth** places in the 1922 **Aerial Derby Handicap** and to the machines gaining **First, Second** and **Third** places in the **August Open Handicap.**

This is the fourth successive Aerial Derby in which B.T.H. Magnetos have been fitted to machines gaining the First and Second places!

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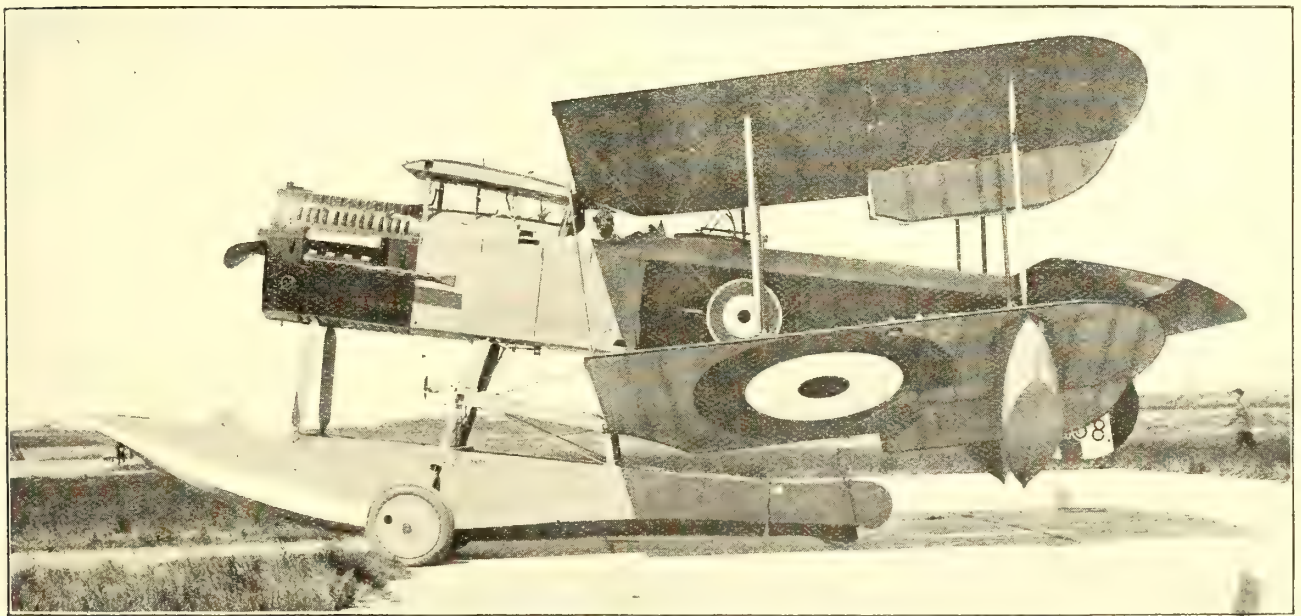
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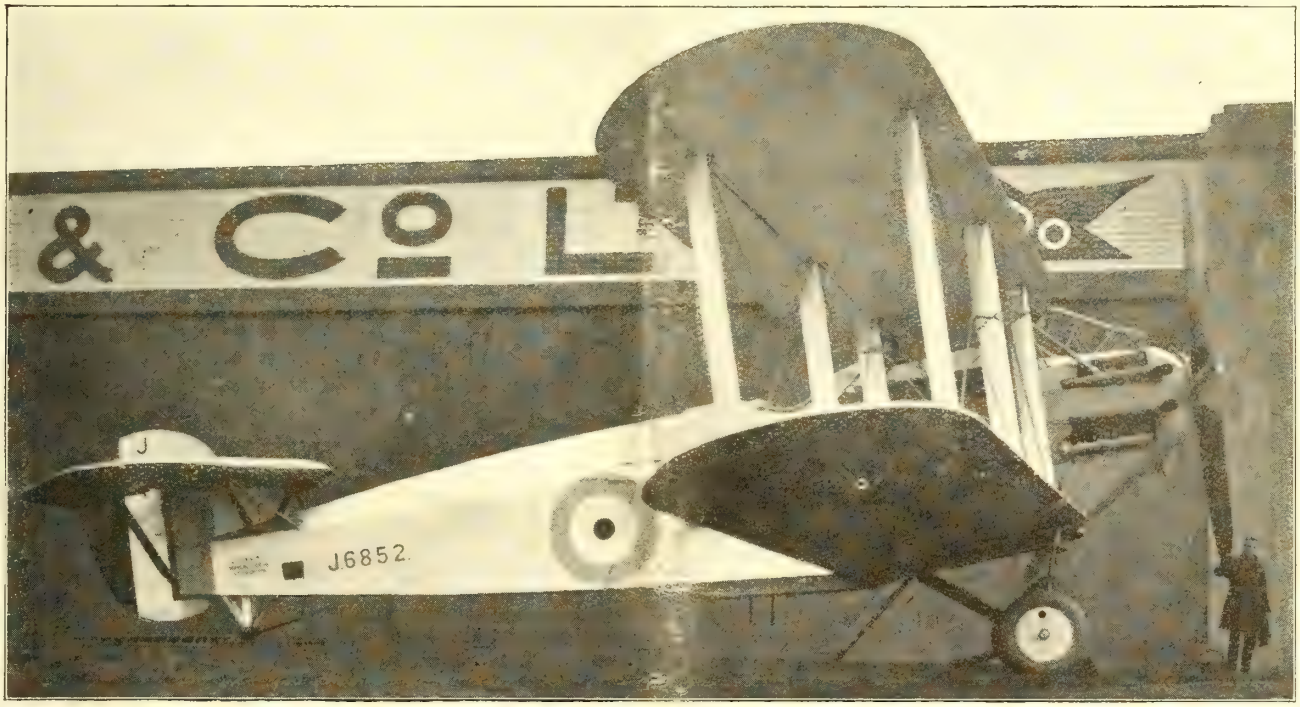
THE AEROPLANE

Edited by C. Grey

WEDNESDAY, DEC. 20, 1922.

Vol. XXIII. No. 25. SIXPENCE WEEKLY. [Registered at the G.P.O. as a Newspaper.]

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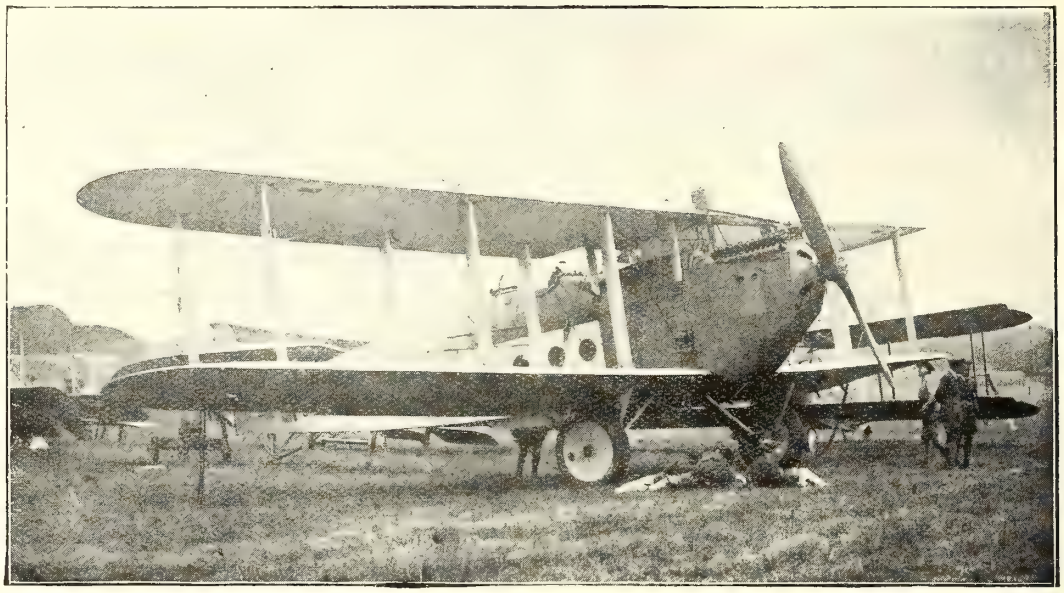
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ON THE PARIS AERO SHOW.

On the whole the French Aircraft Industry is to be congratulated on the 8th Exposition de l'Aeronautiques. It is true that there has been no aerodynamic advance whatever since the war among French designers if one may judge by the machines at the Grand Palais, but there is at any rate evidence that they are beginning to think of something new in both design and construction.

A cynic after walking round the show remarked "Any Englishman can now see why his income tax is five bob in the pound." Certainly there has been colossal expenditure on experimental metal construction and it is a marvel how the aircraft industry of a war-smitten country like France can afford it. One does not imagine that the war-profiteers of the French Industry are paying for it, for they like their English *confrères* probably quit aviation with their money in their pockets and with *Légions d'Honneur* on their frontages in lieu of the titles issued to their English equivalents.

The people who have produced the interesting things at the Paris Show are the people who in one capacity or other built up the French Industry and many of them before the war like MM. Bréguêt, Lioré, Olivier, Bernard, Denhaut, Delage and so forth. Probably they have spent most of their war-profits since the war and are now turning out all this elaborate experimental work to the order of the French Government. And still more probably they are turning it out at a loss, just as the English Aircraft Industry is turning out experimental machines at a loss because there are no production orders following the experimental orders to bring down overhead charges. But certain firms at any rate in France have got production orders for quantities which the English Trade would regard as large enough to bring prosperity to our whole industry. So on the whole the French Industry is much better off than ours.

That being so the great pity is that better use has not been made of the money which is being spent. One of our scientists described the show as being an exhibition of metal tortured into Jukowski profiles. Just why the French who always used to be so original and who before the war taught us all we ever knew about aviation should suddenly break out into an epidemic of aeroplanes constructed more or less after the mode of the German Zeppelin and fitted with wings after the profile of the Russian Pole Jukowski, or Jugowki, or Schouwkowsky, or however he spells his outlandish name, is difficult to understand. Still less can one understand why if they wanted to build in metal purely experimental machines of very doubtful flying capacity they should proceed to do so in the largest possible sizes at the maximum expense.

It is true that the bigger the machine the greater is the advantage of steel or other metal construction, but if a certain method of construction can be got down to the weight of wood in a small machine then it is certain that in the larger machines it will be an advantage. An Avro wing built by the Steel Wing Company showing greater strength for less weight than a standard wooden wing proves more in favour of steel construction than does a whole Grand Palais full of colossal freaks like the Schneider or abortions like the "Lat. 6" or that hardy annual the Bréguêt "Leviathan." Expensive as the Steel Wing Company's experiments have been, thanks chiefly to official obstruction and jealousies and intrigues which have resulted in a system of construction still not being in use to-day which ought to have been in common use during the war, one doubts whether they have cost as much all-in as the Bréguêt "Leviathan" must have cost. And while the "Leviathan" has been in process of experimentation and construction and re-construction the Boulton and Paul "Bolton" with its twin Napier engines has been conceived, experimented, built and flown.

The French would have been more sensible if they had stuck to small metal work till they struck a good system and had then developed it. A little nut-and-bolt job like the Hanriot or a piece of miraculous rivetting like the "Ferbois" Bernard or a thing of beauty like the de Monge is worth far more than the "Lat. 6" which is said to house so many rivets in her mastodonic frame that if each rivet were a mark note at the current rate of exchange there would be enough of them to pay France's war-debt to England.

As to the vogue of Herr Jukowski, one imagines him to be the man of the moment largely because his name is a good mouthful and makes a sound as if the people who drag it into their aeronautical conversation know a lot about aerodynamics, much as people who want to pose as knowing something about music drag in Tchaikowski. And one imagines that Jukowski and Tchaikowski are probably about on the same level in their respective trades. We still have to discover who is the veritable Wagner of aerodynamics, or even the Brahms or César Franck or Debussy.

One is told that Herr Jugowski is a mathematician who has generated some curious wing-curves from basic principles of hydrodynamics, much as Tchaikowski generated alleged classical music from folk-songs. How principles involving a non-viscous incompressible fluid can apply to a highly viscous very compressible fluid one does not pretend to understand. Possibly the pure mathematicians will explain, and one will feel inclined to believe them when one of them designs an aeroplane of original type which flies better than those which have been turned out by our rule-of-thumb (more politely called empirical) constructors ever since flying began.

The job at which the high-browed scientist is useful is proving definitions and little else. No advance in practical aviation has yet been attributable to pure mathematics or to basic research. So far as Herr Iukowki is concerned one is told by those who know that all his wings suffer from having their centre of pressure too far back and having too much movement of the centre of pressure as the angle of incidence of the wing alters. And so far as can be discovered it seems to have little advantage over some wings which have been evolved by the simple method of drawing a nice-looking curve on paper and fitting a nice-looking streamline round it.

As a matter of fact wing profiles make much less difference than people think. The worst possible wing with a good fuselage and tail unit and undercarriage fitted to it—provided they all agree with one another—will make a 75 % better flying machine than a combination of the best possible wing, fuselage, tail unit, and undercarriage evolved separately by wind-tunnel experiments and mathematical calculations if they do not happen to be amenable to one another's peculiarities which they invariably are not when produced by pure theory.

Aerodynamic science so called is about 90% hot air and 10% lucky guesses, for the good and sufficient reason that the scientists as a class know nothing about flying or about aeroplanes. The German laboratory at Göttingen has acquired about as much knowledge as the rest of the world's scientists put together, thanks chiefly to sheer unflagging industry and to collaborating with practical flying people. Which is why so many of the Göttingen wing-sections are so good. But even Göttingen has a lot to learn and one does not imagine that Herr Jukowski is the sole repository even of Göttingen's existing knowledge.

If one had absolutely despotic control over the Paris Show one would pick out four machines and set them on a special stand in the middle of the Grand Palais to be studied by all visitors as being of greater interest than all the rest. Those four machines would be:—the Handley Page, because of its wing-slots and the resultant improvement in starting and landing: the Koolhoven two-seater fighter, because of the basic principles involved in its design—the joke being that most rival designers would fail utterly to see them: the de Monge single-seater, because of its perfect workmanship and general excellence: and the Bernard "Ferbois" racer because of the cleverness of its lines and of its constructional details.

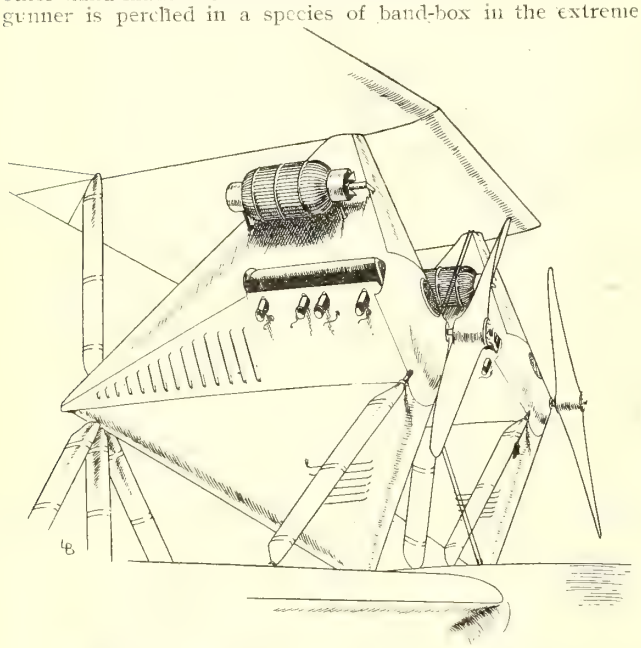
Apart from them there is much well-meaning effort in the Show and quite a deal of very good workmanship. The French aircraft atelier still produces the artist-artisan and the standard of all-round goodness of workmanship at this show is distinctly higher than it was last year. Therefore the French Aircraft Trade is to be congratulated.—C. G. G.

THE PARIS SHOW ALPHABETICAL REPORT.

BELLANGER FRERES.

This great firm of motor-car builders have produced a flying boat which is good to see in spite of the bilious yellow with which it is painted and in spite of its not being very original. It is built to the designs of M. Denhaut, the real pioneer of flying-boats in France, and the originator of the once-famous Donnet-Denhaut. It has two Hispano-Suiza engines fixed in very prettily designed housings each with a single Lamblin radiator outside it. The wings fold back outside the engine-housings and the leading edge sweeps back sharply from the junction with the fixed portion of the leading edge. The trailing edge is straight all along.

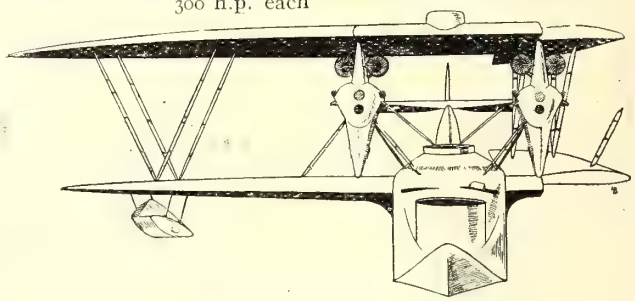
The hull is remarkable for not having any step, and merely a sharp edge where the bottom of the boat proper ends and the fuselage part sweeps up steeply to the tail. This may make it difficult to get off smooth water but may on the other hand make the machine faster in the air. The forward gunner is perched in a species of band-box in the extreme nose of the boat, where he will certainly have a clear field of fire.



The Bellanger-Denhaut Engine-Housing.

SPECIFICATION OF THE BELLANGER-DENHAUT.

Span 20 m.	Wing loading 50 kg./m².
Wing area 70 sq. m.	Power loading ...5.8 kg./h.p.
Weight empty 2,000 kg.	Estimated speed 220 km.
Weight loaded 3,500 kg.	Estimated ceiling ...7,000 m.
Engines ...2 Hispano-Suiza, 300 h.p. each	Radius of action ...1,000 km.



Front View of the Bellanger-Denhaut.

BOREL (S.C.I.M.) :—SOCIETÉ DES CONSTRUCTIONS INDUSTRIELLES MÉTALLIQUES.

THE BOREL TWO-SEATER FIGHTER.

This is an all duralumin reconnaissance fighter two-seater. In general form it is a staggered biplane, lower wing of smaller chord but equal span to that of the top, with two bays of bracing on each side. The pilot sits under the rear spar and the observer is behind that.

The fuselage is of the normal wire braced type, duralumin tubes replacing the usual wooden longerons.

The wings are built on duralumin box spars, and the ribs are made with channel section flanges and sheet distance pieces—as close a translation of wooden construction into metal as one could reasonably expect to achieve.

All joints and wiring plates are of steel—precisely of the type used on normal timber-framed aircraft, and it is interesting to note the very marked signs of rusting shown where the steel was in contact with the duralumin.

Another feature of interest is the internal drag bracing of the wings. This is single piano wire of much finer gauge than one would personally dare to use on a glider—so that one can still find cause to admire the courage of the French.

The engine is a Rateau Supercharged Hispano of 300 h.p., fitted with a built-in "Odier" starter.



THE PARIS AERO SHOW.—A General View looking towards the entrance. On the right the truculent Koolhoven monoplane is seen chasing the tail of the standard Nieuport, which it now supersedes as the World's brightest fighter.

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THE BOREL SPECIFICATION.

Span	13 m. 0	Wing loading	45 kg. per m²
Length	8 m. 17	Power loading	5.9 kg./h.p.
Height	2 m. 88	Speed sea level	200 km.h.
Area	39 m².	Speed 4,000 m.	240 km.h.
Weight empty	1,000 kg.	Landing speed	102 km.h.
Weight loaded	1,750 kg.	Ceiling	10,000 m.

BREGUET.

The Breguet firm show the new version of the Leviathan—that with two Bugatti units mounted as wing engines, equipped as a passenger carrier. They also show in skeleton the fuselage of a Leviathan of the original type with the *groupes quadrimoteurs* Broguet Bugatti in the nose. This fuselage is equipped for bombing, and simply bristles with weapons of offence and defence.

These two exhibits show very little change from the similar ones of last year. They are very beautifully made and finished, and the polished duralumin whereof they are entirely constructed causes them to look more like jewellery than an engineering job. And one imagines that their cost is above that of pearls.

It is a curious characteristic of the French engineer that he cannot be satisfied with a simple and satisfactory solution to any given problem, however well it may function, if that solution is in common use. Accordingly on the two Leviathans the usual king post and wire for operating rudders, ailerons and elevators gives place to toothed quadrants engaging with spur wheels on lay shafts.

There is also present the 14T2 Breguet Limousine mounted on a single central float which has been shown at all the Paris Salons since the war. Last year the float was of duralumin instead of wood, this year it is still of duralumin but appears to have been painted.

SPECIFICATION OF THE BREGUET "LEVIATHAN," TYPE XX.

Description.—Single-screw tractor with Breguet 4 engine unit in fuselage.

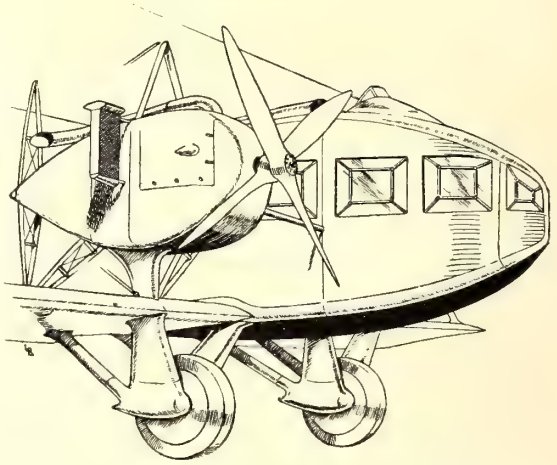
Span	25 m. 54	Weight empty	3,500 kg.
Length	14 m. 02	Weight loaded	6,000 kg.
Gap	3 m. 66	Speed sea level	178 km. h.
Total wing area	140 sq. m.	Climb to 3,500 m.	45 min.
Engine	Breguet Bugatti. quadruple unit, 1,000 h.p.	Ceiling	4,500 m.

SPECIFICATION BREGUET LEVIATHAN, TYPE XXII.

Type	Double airscrew—two twin engine units on wings
Span	25 m. 54
Length	14 m. 02
Height	5 m. 13
Area of wings	140 sq. m.
Weights—	
Empty	3,150 kg.
Fuel	750 kg.
Crew and equipment	300 kg.
Passengers and freight	2,200 kg.
Total	6,400 kg.
Engines	2 Breguet Bugatti twin units of 500 h.p.
Wing loading	45.7 kg. sq. m.
Power loading	6.4 kg. per h.p.
Speed, sea level	180 km.h.
Climb to 2,000 m.	20 m.
Ceiling	4,500 m.
Seating capacity	22 passengers
Radius of action	800 km. approximately.

BUSCAYLET-DE MONGE.

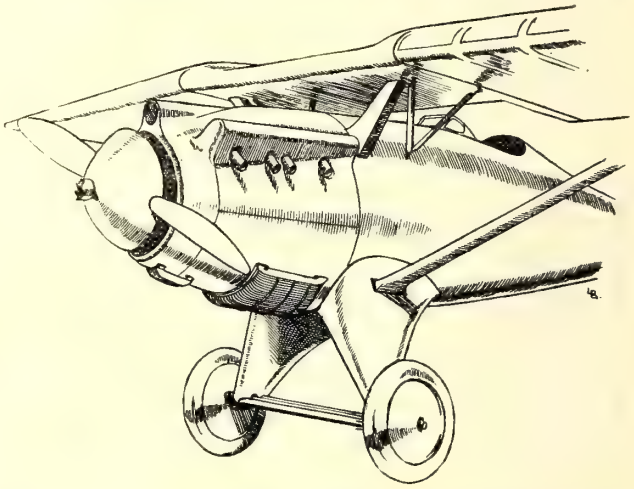
Here is a machine which instead of being stowed in a corner ought to have been on a pedestal in the middle of the Grand Palais to demonstrate all that is best in French art and artisanship. Whatever it may prove to be as a flying-machine when actually tested in the air it is certainly one of the most beautiful aeroplanes one has seen. Its lines are beautiful and its workmanship is worthy of its lines.



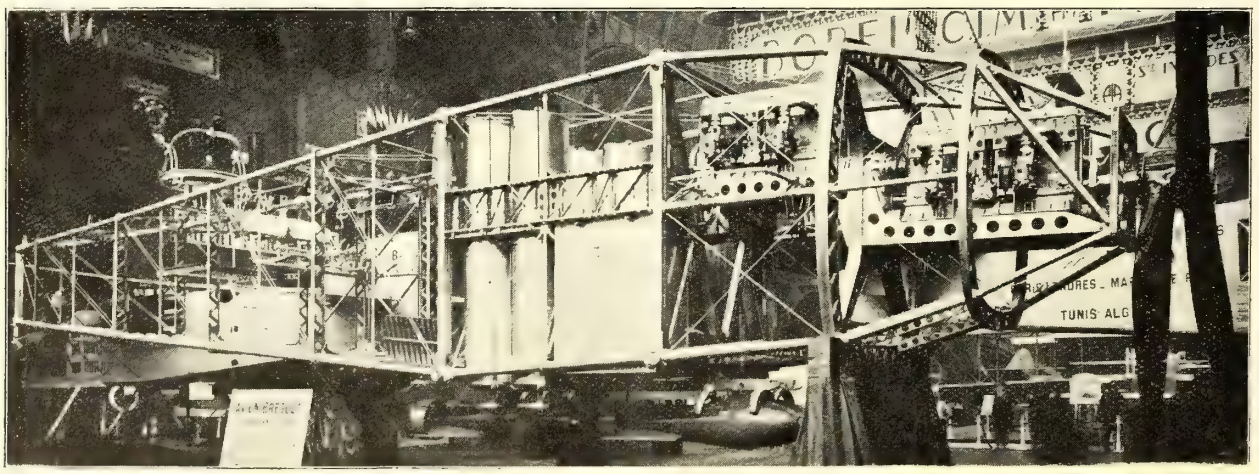
The Nose of the Leviathan.—Type XXII.

But then Louis de Monge is at least as much an artist as an aerodynamic scientist so it is only what one would expect from him. His workmen must likewise be artists, for the sheet-metal work of his streamline fairings and engine-housings are a joy to behold. And the interior work such as the rivetting of the stout metal girders which form the undercarriage struts and the main supports of the wings, besides being just as neat as the external work, shows that the men are first-class fitters as well as artists. One offers congratulations to all concerned with the production of the machine.

The machine is a single-seater semi-cantilever monoplane, with the plane raised on a cabane which gives a clear view ahead. The pilot sits well aft and can see downwards in all directions. The fuselage is beautifully streamlined, but would



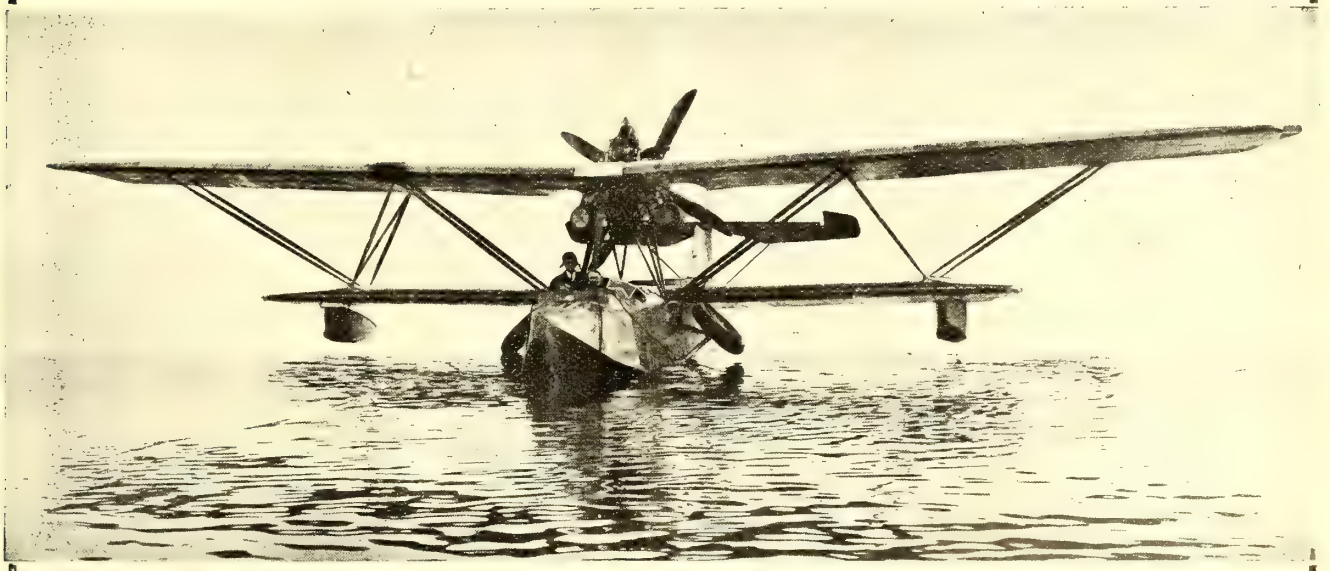
The Nose of the De Monge, with the beard-like radiator known as the "Type Barbe Lamblin."



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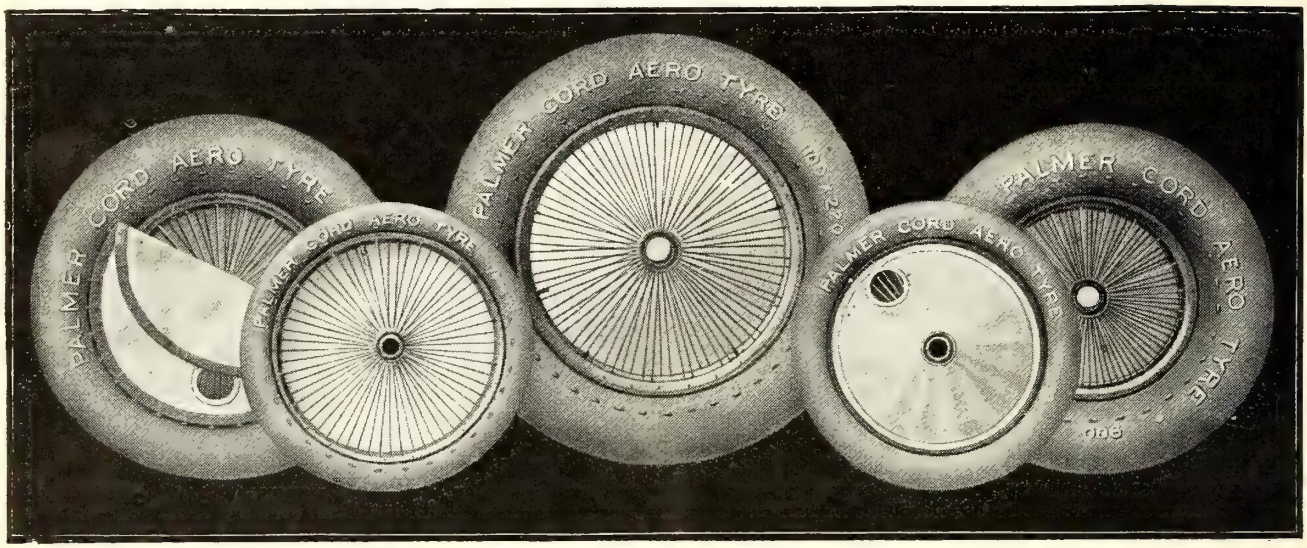
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,,	34	150.	31.75	104/46
,,	111	150.	38.09	104/46
600×75	21	160.	28.	Central
,,	34	150.	31.75	104/46
,,	111	150.	38.09	104/46
700×75	78	178.	44.45	132/46
,,	79	178.	44.45	Central
,,	100	178.	38.09	132/46
,,	101	178.	31.75	132/46
700×100	77	178.	44.45	132/46
,,	92	185.	55.	135/50
,,	95	185.	55.	Central
700×100	96	178.	55.	132/46
,,	99	178.	38.89	132/46
,,	112	150.	38.09	Central
650×125	119	178.	55.	132/46
750×125	77	178.	44.45	132/46
,,	92	185.	55.	135/50
,,	95	185.	55.	Central
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,,	99	178.	38.89	132/46
,,	112	150.	38.09	Central
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,,	163*	185.	66.67	135/50
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,,	102	185.	55.	125/60
,,	141	250.	80.	Central
,,	201	185.	60.32	125/60
1000×150	209	185.	55.	Central
,,	210	185.	60.32	Central
1000×180	148	220.	80.	Central
,,	149	185.	55.	Central
,,	155	220.	66.67	Central
900×200	107	185.	55.	Central
,,	108	185.	55.	125/60
,,	128	220.	66.67	Central
,,	137	250.	80.	Central
,,	202	85.	60.32	Central
1100×220	134	220.	66.67	Central
,,	136	250.	80.	Central
1250×250	133	250.	80.	Central
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1500×300	115	304.8	101.6	Central
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one believes be improved by raising the whole tail unit. The undercarriage consists of big sheet-metal girders enclosed in metal fairings. Provision is made for fitting a lower plane to give an increased ceiling.

A model of a 1,000 h.p. three-engined commercial monoplane of 210 sq. metres surface is also shown.

SPECIFICATION OF THE BUSCAYLET DE MONGE, TYPE 52C.1.

Span 10.9 m.	Wing loading 56 kg./m².
Length overall 7 m.	Weight per h.p. 4.5 kg.
Surface 24 m².	Speed, sea level ...270 km.h.
Engine ...Hispano-Suiza 300 h.p.	Speed, 4,000 m. ...250 km.h.
	Landing speed 105 km.h.
Weight loaded 1,350 kg.	Ceiling 7,000 m.

C.A.M.S.:—CHANTIERS AERO-MARITIMES DE LA SEINE, 72 RUE DE LA BOÉTIE, PARIS.

Here is our old friend Lawrence Santoni, late of the Savoia Co., and erstwhile of the British Deperdussin Co., as keen and enthusiastic as ever. With him is that excellent engineer Signor Conflenti, late of the Savoia Co. They exhibit a school flying-boat, CAMS. 30E, as pretty a piece of work as one could wish to see. It has all the cleanness of line and excellence of finish of Signor Conflenti's Savoias. Otherwise it is a more or less conventional two-seater biplane boat with single-bay wings and a monoplane tail. The engine-housing is particularly neat.

SPECIFICATION.

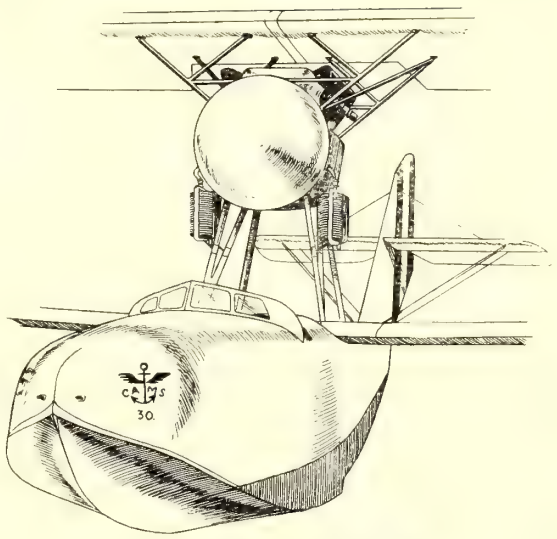
Span 12.50 m.	Weight full 1,180 kgs.
Length 0.20 m.	Useful load 170 kgs.
Surface 43 sq. m.	Performance :—
Engine Hispano-Suiza 140 h.p.	Speed 145 km.p.hr.

The firm makes a similar boat as a three-seater tourer which is estimated to be 5 km. per hr. slower.

CAUDRON.

The Caudron firm, one of the ancients of aviation, exhibit a collection of aeroplanes which take one back in memory to the palmy days of Hendon. All Caudrons fly and there is very little else to be said about them for since the old original bird-cage Caudron the firm has remained faithful to constructional ideas which it has proved and not found wanting.

There is the ancient G3 with Le Rhône engine on which so many of our R.N.A.S. pilots learned to fly and to wrestle with a heavy control. There is the C60, a Le Rhône engined job with a fuselage instead of tail-booms. There is the C59, just like it, but with a small Hispano-Suisa and a Lamblin radiator. There is the C67, a tiny "sports" biplane with a



The Bow of the C.A.M.S. 30E.

3-cylinder Anzani engine. There is the C68, a folding-wing machine, a two-seater with a 6-cylinder Anzani. And there is the C61, a multi-seater with three Hispano-Suizas, one on each wing and one in the nose, much as she was last year, but with bee's-nest radiators under the engines.

Altogether it is quite an interesting display of machines all of which fly about as well as any more modern machines of the same power and none of which show any aerodynamic advance on those of four or five or six or eight years ago, thus demonstrating how very little progress aeroplane design has actually made since the pre-war days.

SPECIFICATION OF THE CAUDRON C.61.

Type ...Three-engined passenger carrier	Weight, full loaded..... 3,480 kg.
Span 24 m. 140	Engines ...3 Hispano-Suiza, 140 h.p. each
Length overall 14 m.	Wing loading ...33.5 kg./m².
Height overall 4 metres	Weight per h.p. 8.3 kg.
Wing area 110 m².	Speed, sea level ...160 km.h.
Weight empty 2,200 kg.	Radius of action ...640 km.h.
Weight of fuel 440 kg.	
Passengers, pilot, etc. 840 kg.	



ANOTHER GENERAL VIEW OF THE SHOW.—The Caudron Fleet is seen in the foreground with the Farmans on the right. The heavily banked Nieuport is seen in the far background.

Specification Caudron C.59.

Type ...Two-seater training machine
Span 10 m. 24
Length 7 m. 80
Height 2 m. 70
Wing area 26 m².
Weight empty 627 kg.
Weight loaded 907 kg.
Engine ...Hispano-Suiza, 140 h.p.
Speed, sea level ...170 km.h.

The Caudron C.60.

Dimensions as the C.59.
Type ...Training or touring two-seater
Weight empty 505 kg.
Weight loaded 862 kg.
Engine 130 h.p. Clerget
Speed, sea level ...157 km.h.

The Caudron C.67.

Type ...Single seat sports model
Span 7 m. 65
Length 5 m. 800
Area 16 sq. m.
Weight loaded 326 kg.
Engine Anzani, 35 h.p.
Wing loading ...20.4 kg./m².
Power loading ...13 kg./h.p

The Caudron C.68.

Type ...Two-seater sports model
Span 7 m. 65
Length 5 m. 80
Area 16 sq. m.
Weight empty 250 kg.
Weight loaded 251 kg.
Engine Anzani, 50 h.p.
Wing loading 28 kg./m².
Power loading 9 kg./h.p.
Speed, sea level ...125 km.h.

FARMAN.

The Farman B.2 Bomber.

This machine has a somewhat curious appearance—it gives rather the impression that Farmans have tried to build a modified version of the 1912 Military Trials "Avro." This is due to the shape of the body and to the fact that the body depth is equal to the gap between planes.

The machine is of metal construction—though it would be somewhat difficult to give a concise description of the type of metal structure employed. Duralumin and steel are the main materials, but it is not easy to arrive at any reason why one or the other is used for any given part of the structure, and one rather gets the impression that the designer having to work to a specification calling for metal construction designed a wooden machine and then put in duralumin members where wood entered into the original design. As a matter of fact one believes that in at least one case he merely cut a bit of his wood and put duralumin sheets on each side of it—but it is not possible to be quite certain of this. At any rate regarded as a metal structure it is not very convincing, though one quite willingly believes that—like other Farman designs—it will work.

Apart from its bi-metallism the machine is quite an ordinary tractor biplane. It carries a pilot with his head sticking out through what would be the top leading edge if it were not the roof of the fuselage, and an observer aft of the wing.

The Farman Two-Seater Monoplane.

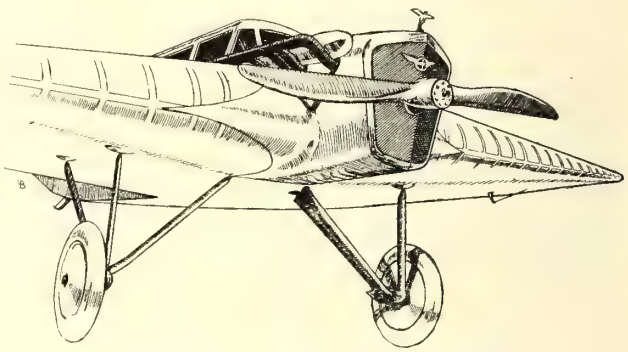
This is probably the ugliest machine that even the Farman firm has ever built. It is a cantilever monoplane, with a wing of colossal chord and thickness at the root, of negligible span, and enormous over-all length.

The wing springs from the bottom of the fuselage, and tapers very rapidly. As usual it is cut off square at the tips, which incidentally are about the only things square in the whole machine. The machine is driven by a Hispano-Suiza of 180 h.p. and the pilot and passenger are ensconced in a glass house erected above the main structure of the body in a manner which suggests that it would be unwise to turn the machine over.

The apparatus probably flies quite well—Farmans do—but it is even less pleasant-looking than previous Farman efforts at monoplanes.

Specification of the Farman Monoplane.

Type ... Touring two-seater, enclosed cabin
Span 10 m. 800
Length overall 9 m. 500
Height overall 2 m. 300
Wing area 28 sq. m.
Weight empty 680 kg.
Weight of fuel 280 kg.
Useful load.....160 kg.
Weight loaded 1,120 kg.
Engine ...Hispano Suiza, 180 h.p.
Wing loading 40 kg./m².
Power loading...6.25 kg./h.p.

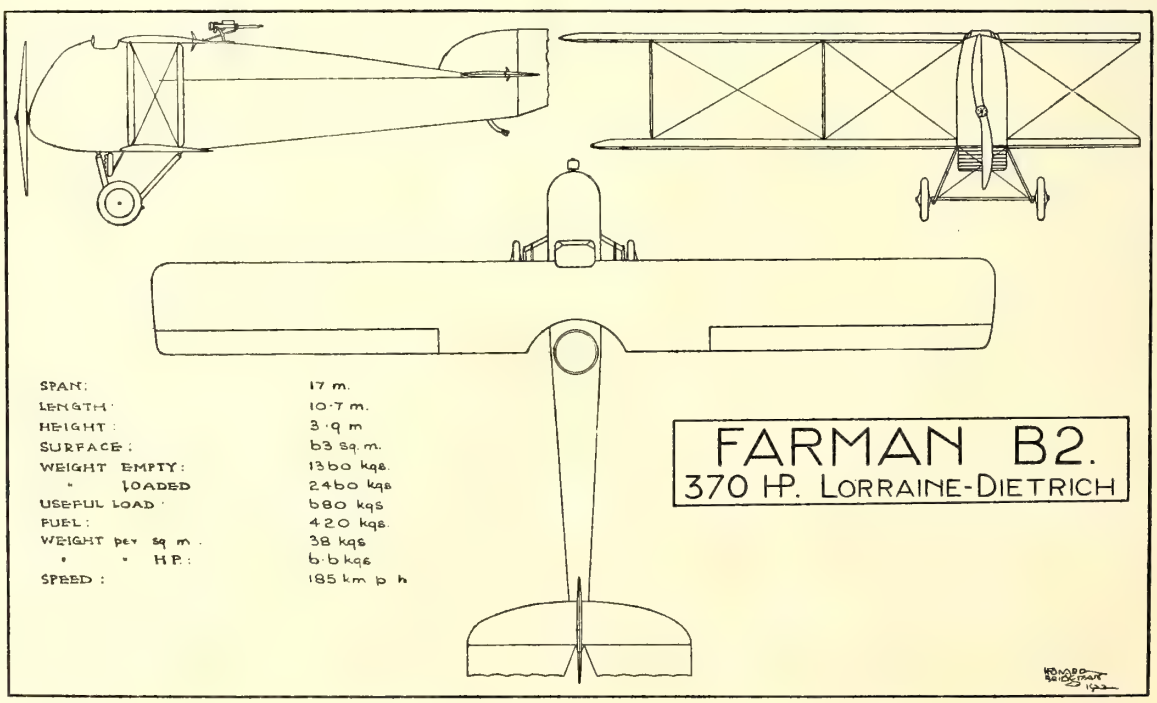


The Farman "Touring" Monoplane.

The Farman Eight-Seater.

This is a Goliath-like single-engine tractor, fitted with one single 600 h.p. Farman engine. Except for the singleness of motive plant and the fact that it is fitted with a normal Vee type undercarriage it is almost indistinguishable from the Goliath.

Passengers—to the number of eight—are carried in a cabin which is just what the cabin of a Goliath would be if the front 5 ft. were filled with engine. No explanation is available of

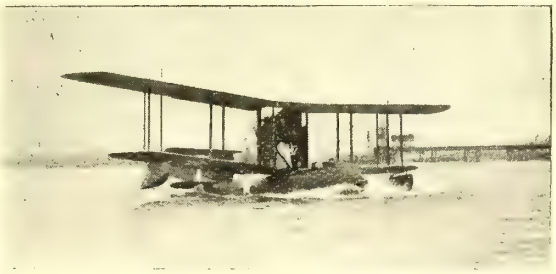


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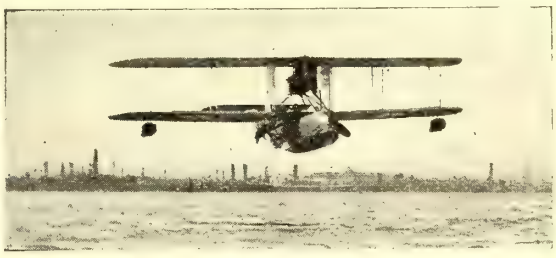
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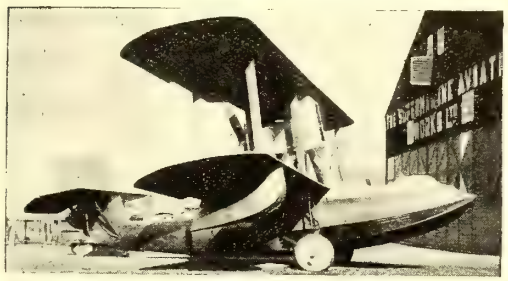
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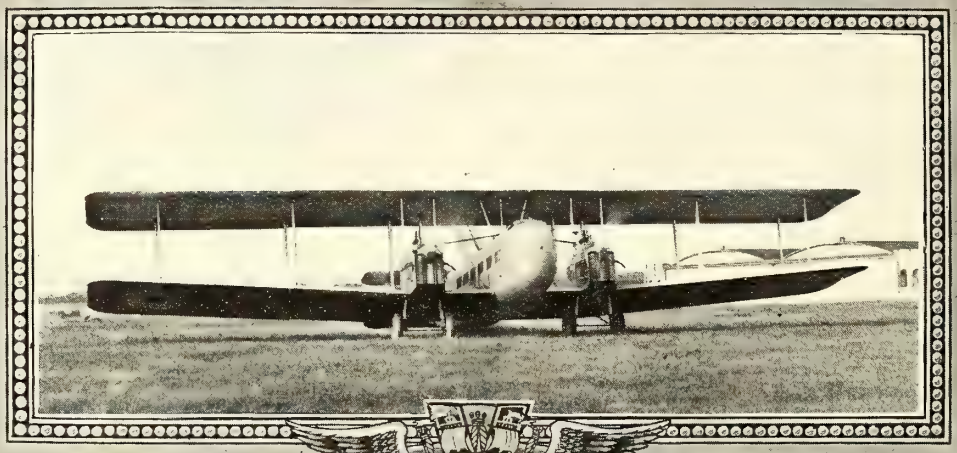
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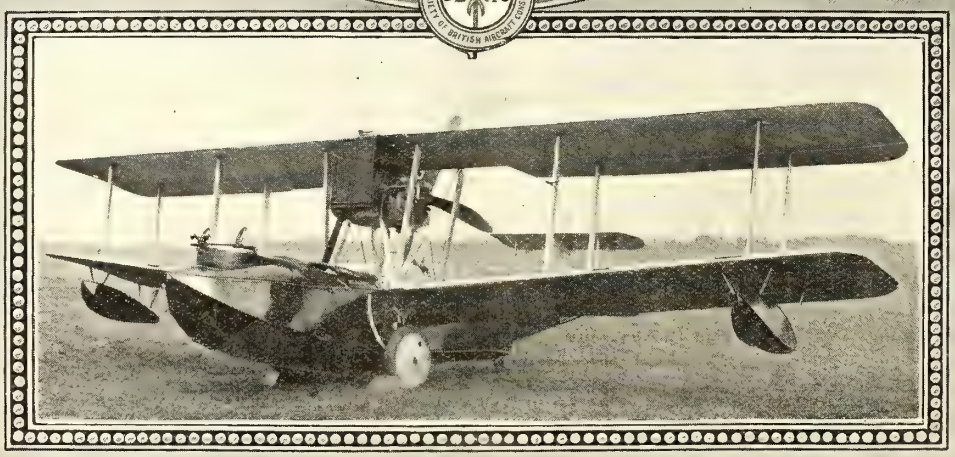


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The above illustration shows a Vickers "Vanguard" (23 Passenger) Aeroplane fitted with two Napier "Lion" engines.

Below is shewn a Vickers "Viking" Amphibian fitted with one Napier "Lion" engine.

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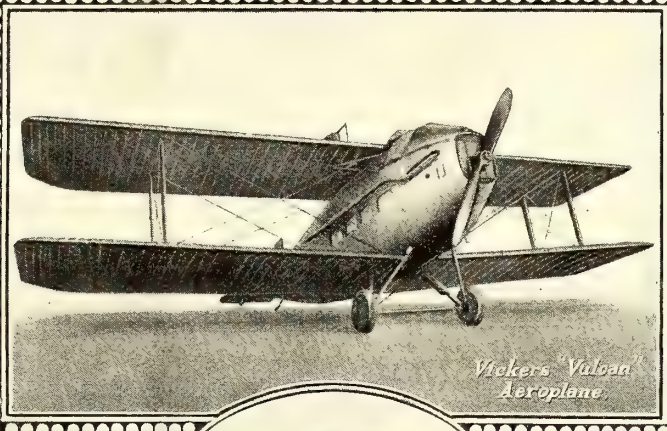
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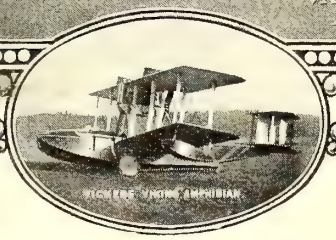
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to why the machine with considerably more h.p. carries only two-thirds the complement of the Goliath.

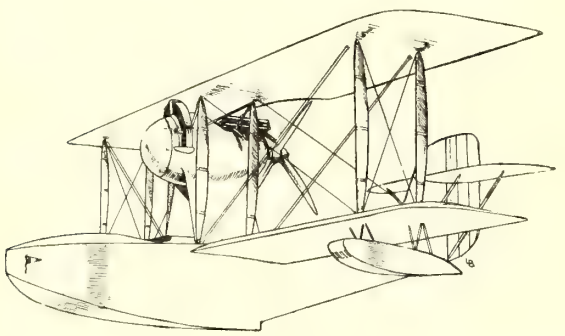
THE COMMERCIAL FARMAN.

Type Single engine passenger carrier	Crew and passengers ... 960 kg.
Span 25 m. 30	Total weight 4,580 kg.
Length 15 m. 00	Engine 600 h.p. Farman
Height 5 m. 25	Wing loading ...30.5 kg./m².
Wing area 150 sq. m.	Power loading ...7.6 kg./h.p.
Weight empty 3,000 kg.	Fuel capacity 5 hours
Weight of fuel 620 kg.	Estimated speed ...180 km.h.

F.B.A.

THE F.B.A. TWO-SEATER.

The F.B.A. firm has certainly a longer history behind it than any still existing firm of flying-boat builders—but comparatively little of its work has been seen during the past few years. It exhibited a couple of hulls at the last Salon, and one is glad to see it represented again by a complete flying-boat. To say that this machine is an example of the conventional type of single-engined flying-boat is in this case at least free from the shadow of a reproach, for the F.B.A. firm—or rather their ancestors the Donnet-Levêque Co.—were the originators of this form of flying-boat.



THE NEW F.B.A.

This particular machine is a small side-by-side two-seater with a 180 h.p. Hispano-Suiza engine. The wing structure is a single biplane, with a dihedral on the bottom wing only. The tail is normal—consists of a tail plane and elevator carried half way up a fin built on to the aft end of the hull. The tail of the hull rises fairly steeply to carry the tail surface clear of the water, but the very exaggerated upsweep of this part which was a feature of F.B.A.s in the past has disappeared.

The hull is of three-play secured to timber framings, and is generally rectangular in section—a slight V bottom at the bows washing out to flat well before the step. The step is deep—at least 6 inches.

SPECIFICATION OF THE F.B.A., TYPE 16.H.E.2.

Type ...Two-seater advanced training machine	Engine ...Hispano-Suiza, 140 h.p.
Span 11 m. 00	Wing loading 38 kg./m².
Length 9 m. 20	Power loading ...9.2 kg./h.p.
Height 3 m. 15	Speed, sea level ...140 km.h.
Surface 34 sq. m.	Landing speed 85 km.h.
Weight empty 1,020 kg.	Climb to 2,000 m. 26 m.
Weight loaded 1,290 kg.	

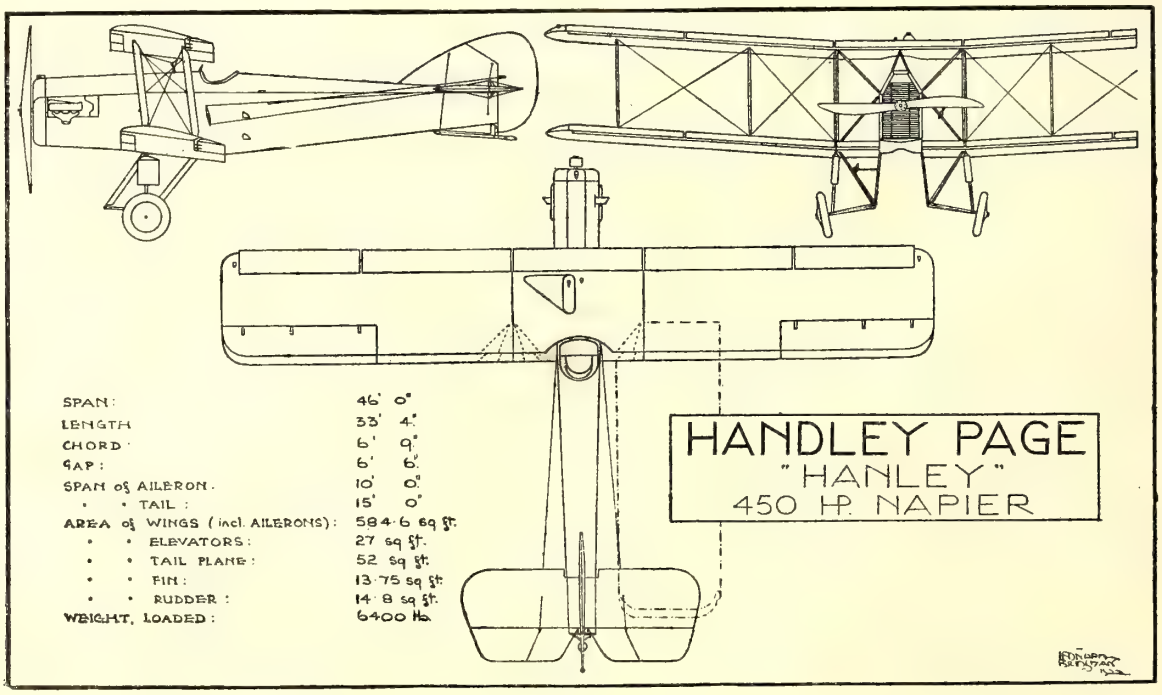
HANDLEY PAGE.—HANDLEY PAGE, LTD., CRICKLEWOOD, LONDON, N.

The Handley Page torpedo-carrier, known under the Air Ministry's scheme of nomenclature as the "Hanley," is the only English aeroplane in the show. One gathers that the Bristol Co. also applied for space and were allotted such inadequate accommodation that they withdrew. The Handley Page firm would have been quite justified in doing the same, for their machine is tucked away in a corner with its tail half way up a staircase and so situated that only the front of the machine can be seen. However they have the satisfaction of having as fellow-victims in a similar position on the other side of the hall another of the few interesting machines in the show, the Buscaylet-de Monge, while comics like the Pescara helicopter and a heap of quite uninteresting machines occupy large and prominent spaces. It may be the fortune of the ballot for positions or it may not.

The "Hanley" has already been illustrated in this paper, and in a mere show report there is no space to describe and illustrate it in full detail as it is intended to do as soon as is permitted. Meantime a general description may serve. The machine is a torpedo-carrier fitted with Handley Page slotted wings, intended to get off and alight on the decks of aircraft-carrying ships. The slot arrangement is of the type already described in which the false leading edge is carried on forward extensions of the wing ribs and opens and shuts like the slots of a Venetian blind. The machine itself is a good workmanlike job without any particular show finish or meretricious decoration. In fact it is just as it has been flown experimentally at Cricklewood and as it has been flown thence to Paris.

The torpedo is carried close up to the fuselage so the undercarriage necessarily consists of two entirely separate structures secured as regards their inside members to the outside of the fuselage and as regards their outer members to the inner bay of each wing, from which line the wings fold back for storage. The wheels are carried on an oleo-pneumatic shock absorber which has proved highly satisfactory in practice. Several times in experimental flying Mr. Wilcockson, the H.P. test-pilot, has stalled the machine with the wing-slots open and has practically parachuted her onto the ground at a stand-still.

With a Napier "Lion" engine the machine has shown her ability to lift the standard Navy torpedo with ease after a very short run and with full load and the slots closed she has a very fair turn of speed. As shown the machine lacks the R.A.F. bomb-racks and hooks for deck-landing wires



A.D.C. LIMITED



Capt. Norman MacMillan, M.C., A.F.C.

LONDON to CALCUTTA in an A.D.C. D.H.9.



Capt. MacMillan arriving at Karachi.

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Gentlemen.

Several things may interest you in connection with the flight from London to Calcutta in which I piloted a 240 h.p. SIDDELEY PUMA—D.H. 9 supplied by A.D.C.

We made a non-stop aeroplane flight across the eastern Mediterranean from Athens to Egypt (Sollum), a distance of 485 miles, in 4 hours 30 mins. Not once during this sea crossing did the engine give a moment's cause for anxiety.

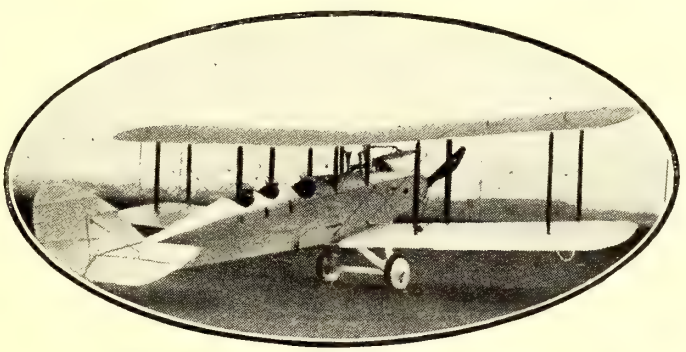
We made the first flight across India during the monsoon—through tropical storms and with temperatures ranging up to 123° F. in the shade. Mountain flying and desert flying we had in plenty, bad going in the air and on the ground.

The load carried was far in excess of the war load for which the machine was designed and the strains imposed upon her were vastly greater than would have been the case with normal load.

It is not possible to say we had no trouble—I feel certain that any present day machine would have given trouble under the conditions we encountered—but I think that its performance in carrying us to Calcutta speaks eloquently for the condition of the machines which you supply.

Yours faithfully,

NORMAN MACMILLAN (signed)



The A.D.C. 3 seater D.H.9 used in the flight.

AIRCRAFT DISPOSAL COMPANY, LIMITED,

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and torpedo-heater gear and torpedo depth adjustments and a variety of other Air Ministry humours so that she lacks the majority of the gadgets which gained for her in her initial state the nick-name of the "Heinz biplane" on account of her "57 Varieties" of control levers. And as she stands she is a very sound-looking flying machine

HANRIOT.

The Hanriot firm exhibits two machines—one the well known H.D.14 standard training two-seater, 110 h.p. Le Rhône and more struts to the square metre than anything which has yet flown, the other the skeleton of a single-seater fighter of the latest style—complete with duralumin structure and Joukowski wing profile.

This machine known as type H.26 is a sort of super-Sesquiplan—it has one little wing fairing the undercarriage axle, one less small suspended half-way up the undercarriage, and one sizeable wing above the fuselage.

The structure is distinctly complicated. The wings, except that on the axle, are semi-elliptic in plan form. They are built each on one large duralumin tube spar of rectangular section, assisted by two circular tubes—one in the nose of the wing and one about half-way between the box spar and the trailing edge. The ribs are lattice girders built of duralumin channel section of about 6 by 6 mm. section fastened together by 1½ mm. bolts and nuts. The ribs are fastened to the spars by about 3 mm. setscrews.

The fuselage is of the usual wire braced rectangular type with longerons and struts of duralumin channels of about 25 mm. side and 1½ mm. thick. Outside this main structure there is a subsidiary fairing built up of formers and laths made from the same size channels as are used for ribs.

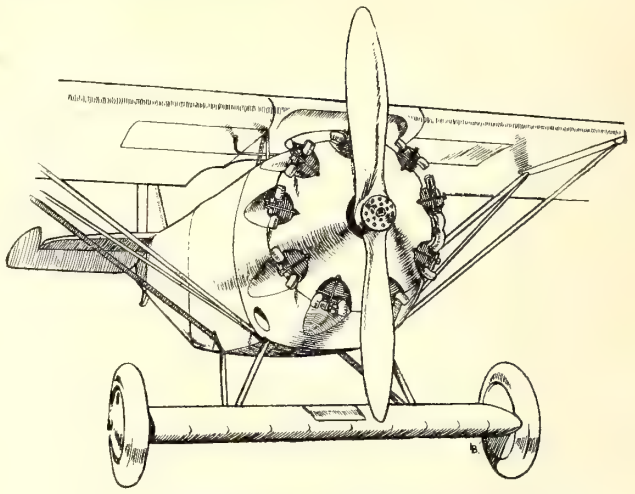
The wings are braced by one set of lift wires on each side, which run from a rear extension of the undercarriage to about half-way along the span of the upper wing. Landing loads are taken by the spars without exterior assistance.

SPECIFICATION OF THE HANRIOT H.26.

Span	top 8 m. 20	Useful load	80 kg.
Span	lower 5 m. 70	Speed at sea level	260 km.h.
Length	7 m. 35	Fuel capacity	2 hours
Wing area	18 sq. m.		

KOOLHOVEN:—N.V. NATIONALE VLIETUIG INDUSTRIE. ROTTERDAM.

Mr. Frederick Koolhoven's new two-seater fighter, his first aeroplane product since he left England, is certainly one of the finest machines in the Grand Palais. In fact it might well claim to be the *clou* of the show. One gathers that Mr. Koolhoven has a strong financial group behind him in Holland. At any rate Colonel Wallardt-Sacré, formerly commanding the Royal Dutch Flying Corps, is in it so it may be assumed that the firm is of real importance.

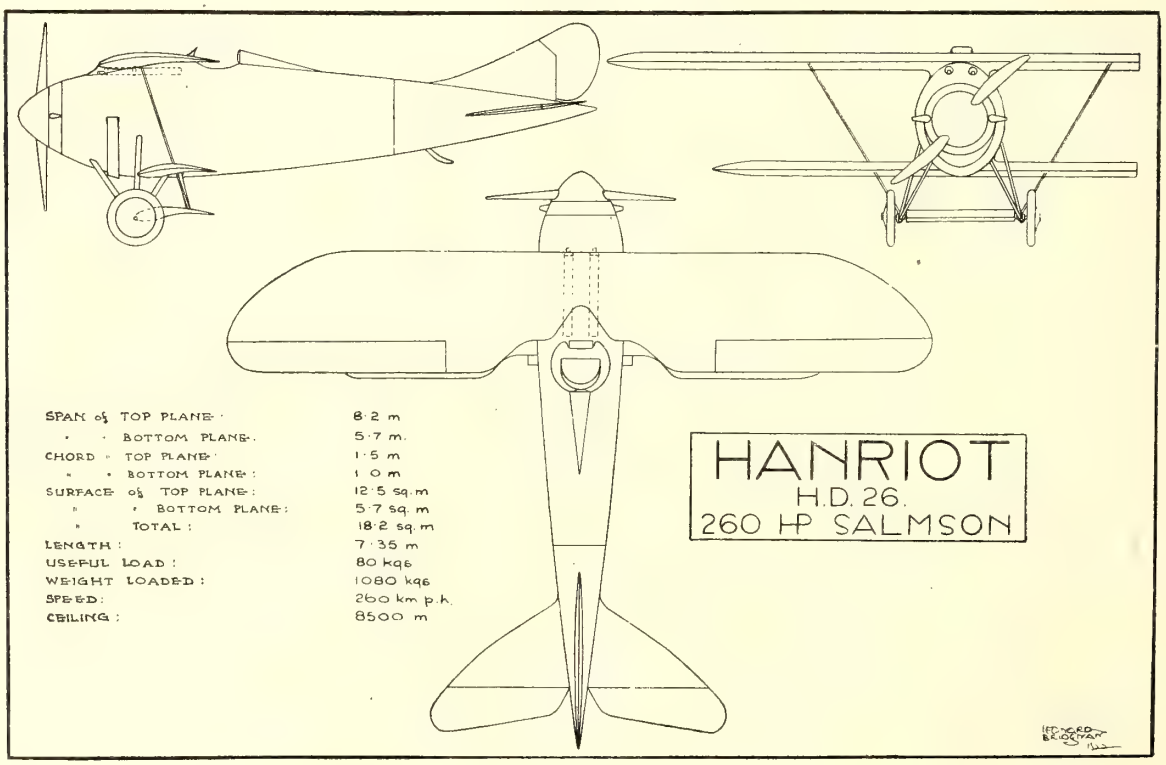


Front View of the Koolhoven F.K.31, with Bristol "Jupiter" engine (400 h.p.)

The machine is a semi-cantilever monoplane built entirely of steel tube, except that in this show machine the wings are of wood. There is nothing startling or freakish about the general lines of the machine, but somehow it is distinctly impressive. It gives one the feeling that it would be a very nasty affair to meet in the hands of a good enemy pilot.

The engine is a Bristol "Jupiter" (400 h.p.) which naturally makes the machine bull-nosed and so adds to its hostile appearance, and the lines aft therefrom carry out the militant aspect. The wing is raised slightly from the fuselage, which gives the pilot a clear view forward and at the same time prevents that trapping of the air which according to recent theories has spoiled many an otherwise good cantilever monoplane in which the wing has been so-to-speak nailed down on top of the fuselage.

The fuselage proper is only about half the depth of what appears to be the fuselage. Consequently the pilot and gunner actually sit on top of the fuselage in a false structure which is only stream-lining. The pilot sits under the wing between the spars where there is a hole through which he can see upwards all round, as in the little "Bat," but though he can get in and out through this hole there is also a side door in the false part of the fuselage through which he can emerge if the machine turns over on landing. The pilot's guns are carried on the floor of his cock-pit, also as in the "Bat," so that he has plenty of elbow room.



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C.M.A. Air Lines is the British title of the Compagnie des Messageries Aériennes, whose head office is at 2, Rue Galilee, Paris. The Company was originally founded early in 1919, by M. Louis Breguet, for the transport of goods from Paris to Lille, the ground communications having been so much disturbed by the European War. This line, which was the first commercial aviation service in the world, was soon extended to Brussels and the line from Paris to Brussels has been maintained by the Company ever since.

In September, 1919, a service between London and Paris was inaugurated in conjunction with Handley Page Transport, Ltd. This was originally operated three times a week each way, but later, when the two Companies separated, a daily service was commenced, which has now been extended to a thrice daily service.

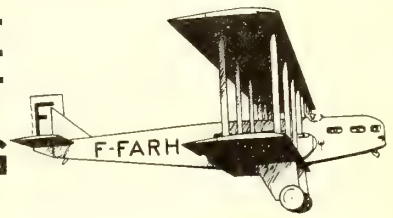
By an arrangement with the Compagnie Générale Transatlantique a service is run to connect with the arrival and departure of this Company's sailings between Le Havre and New York. This is the first occasion on which a large shipping company has recognised the necessity of using commercial aviation in its transport policy.

The Company's service has now reduced the time of transit between London and Paris to two and a-half hours; between London and Le Touquet to one and a-quarter hours; between Paris and Le Touquet to one hours and between Brussels and Amsterdam to two hours and a-quarter hours; between Paris and Brussels to two A line has been inaugurated to run direct from London to Marseilles, calling at Paris and Lyons and connecting with the Steamship Lines to India and the East. This brings Marseilles within six and a-half hours' reach of London and Lyons within eight hours' reach of London.

The C.M.A. Passenger Service is maintained by twin tractor Farman Goliath Biplanes, fitted with two 300-h.p. Renault Engines and with a seating capacity for 12 passengers, pilot and mechanic. This machine has a wing-span of 92 ft., a length of 49 ft. 6 in. and a height of 16 ft. Its cruising speed is 93 m.p.h. The freight, mail and newspaper services utilise the smaller type of single-engined Spad and Breguet.

The Compagnie des Messageries Aériennes is an association of aircraft constructors for the study and application of Aerial Transport, and among its Board of Directors appear the well-known names of Messrs Bleriot, Breguet, Caudron, Farman, Morane, Luquet de St. Germain and Renault.—*Extract from R.Ae.C. Year Book.*

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The gunner has a regular *apartement* just behind the pilot. The two are only separated by the thickness of the rear spar, and for the gunner's entertainment a set of instruments is neatly fitted onto the back of that spar. In this appartment the gunner has not merely room to turn round, but room to lie down and go to sleep if he wishes. Consequently he can carry an enormous camera, wireless set, and oxygen bottles besides any quantity of other gadgets such as Air Ministries require (though fighting aviators do not), as well as a sensible parachute and other real desiderata, and yet have plenty of room for his double guns and lots of ammunition. The fitting of all the furniture for the pilot and gunner is greatly facilitated by designing the cover of the false fuselage on the starboard side so that by undoing three streamlined wing-nuts a large piece of the metal covering comes off leaving the whole interior of the "habitacle" exposed.

The top of the fuselage is horizontal and the flat bottom slopes sharply upward from the end of the gunner's apartment, thus giving that "step" effect which some few advanced designers have discovered to be of prime importance to the speed and control of an aeroplane. It is not without reason that the under surface of a bird's body slopes upwards and flattens as it does so.

The tail unit is highly ingenious. The fixed tail and fin are integral with a box structure the top of which is hinged to the top of the fuselage, the sides and bottom swinging from that hinge telescopically inside the fuselage. Thus the tail angle can be varied without breaking the streamline of the fuselage itself. It is "so simple," as the furniture advertisements say.

Inside the bottom of the rudder is a sprung tail-skid, itself made of spring steel, and this is so arranged that though it swivels with the rudder and so steers the machine on the ground none of the strain is put on the rudder structure but is all carried on the hinge-fitting itself. The skid itself can be renewed in a minute by undoing two nuts and bolts.

The plane is of Göttingen 430 section, perhaps modified *à la* Koolhoven, for he generally improves on anything which he adopts from other people. The ailerons have a pronounced balance, intended rather to relieve the strain on the aileron tube than actually to assist the pilot. The plane is made as two separate wings which join over the top of the fuselage, the spar-butts being covered by metal stream-lining. Each wing contains a tank, so that the petrol-feed is by gravity alone, thus avoiding unnecessary pumps and gadgets and also raising the centre of gravity of the whole machine. The wing-stays are of streamlined steel tubes forming an N.

The "Jupiter" engine swings bodily in its housing, in the manner used in the Bristol 10-seater. All controls and connections pass through and down the hinge so as to avoid disconnecting when the engine is swung out for inspection. Behind the engine is a fireproof bulkhead, and the air intakes to the carburettors are carried through the cowl in big pipes so that no petrol leakage can get inside the cowl.

The undercarriage is also original though it does not look it. The axle is surrounded by a proper aerofoil, the main spar of which envelopes the wheel-axles proper. These are hinged at the centre of the undercarriage, which is 12 ft. wide. The "bunjy" shock-absorbers go right round this spar so that the axles float in the middle of the bunjy, which consequently acts both ways and checks the re-bound of the wheel. Moreover as the weight comes onto the bunjy this squeezes the split ends of the spar against the axles and causes a friction-brake effect like that of a Houdaille shock-absorber.

Altogether the machine is worthy of Mr. Koolhoven's genius and one hopes to hear a great deal more of it in the near future. The N.V. National Vliegtuig Industrie is to be congratulated on its first production and on having had the pluck to back Mr. Koolhoven's ideas.

SPECIFICATION OF THE F.K.31

Span 36 ft. 2 in.	Speed at 3,000 ft....160 m.p.h.
Length overall ...24 ft. 7 in.	Landing speed 57 m.p.h.
Height overall 7 ft. 3 in.	Climb to 3,000 ft.
Chord.....7 ft. 10 in.	1 min. 40 sec.
Wing area 275 sq. ft.	Climb to 10,000 ft.....6 min.
Span of tail 9 ft. 10 in.	Climb to 15,000 ft. ...12 min.
Weight complete ...3,300 lbs.	Service ceiling 24,000 ft.
Weight empty 1,800 lbs.	Loading per sq. ft. ...12 lbs.
Military load ...1,500 lbs.	Loading per h.p. 8 lbs.
or 45% of total weight	Safety factor more than 8
Duration...4 hours at full throttle	

NOTE.

The Paris Show Report will be continued in alphabetical order next week.

AIRCRAFT IN PARLIAMENT

German Restrictions on British Aircraft.

On Dec. 13th, replying to a question by VISCOUNT CURZON, the SECRETARY OF STATE FOR AIR said that the German Government have made it a condition of according the right of British Aircraft to fly to the occupied territory, after 1st Jan. 1923, that German machines of equal flying capacity shall be allowed to fly over and land in occupied territory. His Majesty's Government are fully alive to the urgency of the issues and are considering them, in consultation with the Allied Governments, with a view to the protection of their interests.

R.A.F. Aircraft Orders.

On Dec. 14th, replying to questions by REAR ADMIRAL SUETER and CAPT. VISCOUNT CURZON, the SECRETARY OF STATE FOR AIR said that orders for aircraft and engines to the value of about £280,000 were placed with a number of private firms during the autumn. As deliveries will not be completed by the 31st of March next, only a part of this liability will fall due this financial year. Since the present Government assumed office no further orders have hitherto been given, as the expansion of the Air Force was one of the commitments of their predecessors which they felt bound to examine. SIR SAMUAL HOARE added that he was able to inform the House that the formation of the additional regular squadrons for home defence will now proceed and that definite orders for additional aircraft and engines will be immediately placed. Pending a fuller review of the situation no further progress will be made with the scheme for an Auxiliary Air Force.

CAPT. W. BENN asked if the money for the Air Force would be found by economies on the other two Services. SIR S. HOARE:—"Certainly, so far as possible."

PERSONAL NOTICES.

DEATHS.

DAKIN.—John Evelyn Harrison, Capt. (late Squadron Commander, R.A.F.), son of the late Joseph Harrison Dakin, of Britanny Lodge, Edwardes Square, suddenly, in South Africa, on the 8th inst., age 34.

HARRIS.—On Dec. 10th, 1922, at the R.N. Hospital, Chatham, of pneumonia, Bertrand Reginald Harris, F/O., R.A.F., of 56, Clifton Gardens, Maida Vale, W., aged 27.

WALLWORK.—On Dec. 18th, at Brockworth, nr. Gloucester, in an aeroplane accident, F/O. John Wilson Wallwork, M.C., R.A.F.

ENGAGEMENTS.

LEWIS—LEWIS.—The engagement is announced between Harold Morgan Lewis (late Lieut., R.A.F.), third son of Dr. and Mrs. B. Morgan Lewis, Sunnyside, Pontypridd, and Doris Maud, only daughter of Major and Mrs. W. Lewis, Pentwyn, Sion Hill, Bath.

MARCH—BOWMAN.—The engagement is announced between Mr Edgar J. March, only surviving son of Mr. and Mrs. W. March, residing at "Kimberley," Westgate-on-Sea, and Miss Linda Dorothy Bowman, only daughter of the late Mr A. Tottenham Bowman and Mrs. Bowman, of Albion Road, Birchington-on-Sea.

RUSSELL—COTTON.—A marriage has been arranged, and will take place on December 16th, in Toronto, Canada, between Leonard Chester Russell, late Royal Fusiliers and R.A.F. youngest son of Mr. and Mrs. John Russell, of London, and Mary Eileen Cotton, younger daughter of the late Francis W. Cotton, of Halifax, Nova Scotia, and Mrs. Weston Brock, of 110, Forest Hill Road, Toronto.

BIRTHS.

BABINGTON.—On Dec. 12th, at "Ledgers," Warlingham, Surrey, the wife of S/Ldr. Philip Babington, R.A.F., of a daughter.

BUCK.—On December 1st, at Claremont, Orleans-road, N., to Mary (*née* Mitchell Nicoll), wife of Capt. A. F. Buck, late R.A.F.—a son.

GUILFOYLE.—On Dec. 14th, at Serrano, Frimley Green, Surrey, the wife of S/Ldr. W. J. Y. Guilfoyle, O.B.E., M.C., R.A.F., a son.

RIDLEY.—On November 23rd, at Alwyn, Ruislip, the wife (*née* Leslie Bolton) of Eric L. Ridley, R.A.F., of a daughter.

UNWIN.—On Dec. 2nd, to Margaret, wife of S/Ldr. F. H. Unwin, O.B.E., R.A.F., Aboukir, Egypt, a daughter.

WALKEY.—On Dec. 12th, at Fishlake House, Herbert Road, Woolwich, the wife of the Rev. J. R. Walkey, R.A.F., Mesopotamia, of a daughter.

GLIDING TIME.

Itford Hill.

Major Maurice Wright and Mr. Frank Courtney carried out some further experiments with the C.W.S. glider designed by Captain Sayers at Itford Hill on Sunday afternoon. Larger controls have been fitted and some delay was caused by repairs which had to be made to the rudder as this had been slightly damaged by the fabric of the tent which had blown loose and flapped against it.

Soon after luncheon the machine was taken up Itford Hill in a wind that was blowing at about 15 m.p.h. When the party got to the top of the hill the wind suddenly dropped to nil. However they decided to launch the machine down the gentle slope in the direction of Newhaven. Mr. Courtney had the first try but owing to his weight and lack of wind the machine would not take off. Major Wright who is considerably lighter then took his place and at the first attempt got into the air after a run of only a few feet and started a straight glide hardly losing any height at all.

He travelled a distance of about a mile and a quarter in 1 min. 58 secs. and landed the machine successfully in a ploughed field still going about 30 m.p.h. He landed here in order to avoid crossing the river and the railway as by this time it was quite late in the afternoon and he wished to avoid having to bring the machine back over these obstacles. The glider has proved to have an excellent gliding angle and was very good on fore and aft control but is still a bit sticky on the rudder and ailerons. Further experiments will be made.

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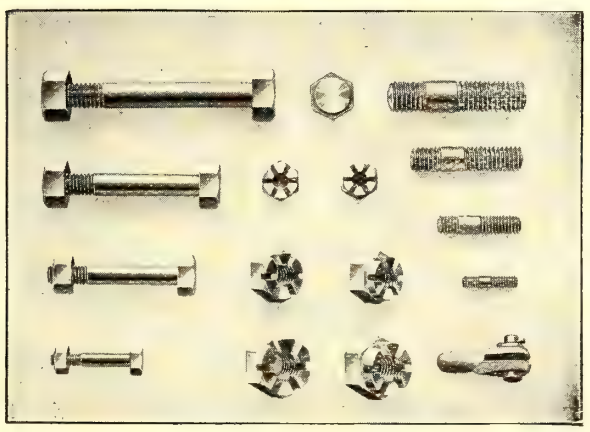
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GLIDING TIME (Contd.)

Torquay.

Mr. F. P. Raynham and Mr. Vaughan Fowler have been at Torquay for the past three weeks with the Handasyde glider to take part in a film called "The Hawk" which is there being produced. The general idea of the film in which Mr. Raynham appears is that the heroine is being abducted by the villain in his private submarine and the hero (Mr. Raynham) riding along the coast watching the submarine, comes across the glider belonging to an experimenter, jumps into it, is shot over the cliff, lands in the water by the submarine, jambs the conning tower and rescues the heroine.

In order to render the machine sea-worthy it was merely doped with some extra coats of Cellon dope.

Mr. Raynham made one or two trial flights in the machine and towards the end of last week the conditions of the light, wind and sea were suitable although the wind was not so strong as it might have been. Soon after mid-day the machine was prepared and took the air successfully and after a glide of nearly a minute while the kinema cameras were all going at full blast he landed in the sea without a splash. Whilst getting it to shore again Mr. Vaughan Fowler delighted everybody by falling into the sea with all his clothes (presumably complete with spats and cerise waistcoat).

The tail plane was slightly damaged so the machine was taken to the nearest workshop, which happened to be the local undertaker's, and was repaired among the coffins. Afterwards Mr. Raynham and Mr. Fowler took it back to the bedroom of their hotel where they doped it. The glider has been out in the open all the time. It is kept on the lawn of a private house and it has to be handed over the wall when it goes in or out.

Mr. Raynham is going to take the glider over the cliff again as soon as weather conditions are fit. The performance has created an enormous amount of interest in the Torquay district.

Biskra.

The Biskra Gliding Competition which was to have been held from January 3rd to the 31st next has now been postponed until April. This will not only give considerably more time for British intending competitors to prepare their machines and also to make attempts on the Selfridge prize before leaving, but it will give them time to raise the necessary financial wind, which is quite as necessary as an ascending atmospheric current for soaring ambitions.

THE NAPIER "CUB" TAKES THE AIR.

On Friday last the 1,000 h.p. Napier "Cub," the World's biggest aero engine, was given its first test in the air in the presence of Air Vice-Marshal Sir Geoffrey Salmond, Wing-Commander Cave-Browne-Cave, Mr. A. V. Roe, Mr. H. T. Vane, and many others. It had been installed in an Avro "Aldershot" bomber. The particular machine had already done a considerable amount of flying fitted with a Rolls-Royce "Condor."

The firm of D. Napier and Son Ltd. obtained permission from the Air Ministry for the Press to be present to witness this important event. For sheer excellence of organisation that firm, and in particular Mr. F. Hazell Jones the responsible artist, always rise to the occasion, and A. V. Roe and Co. showed that they have little to learn about organising a show.

Those who frequent places where they test know the usual messing about and wasting of time that accompanies such an event, but on Friday there was none of this.

The party met Mr. Jones at Waterloo just before 09.30 hours and reached Southampton at 11.30 hours where a 'bus was in waiting to take us to Hamble. Here the "Cub" machine was waiting in readiness. The engine started at once and within five minutes of the arrival of the party the machine was in the air. After it landed an excellent lunch was served.

The installation of the "Cub" in the Avro is a very neat job and reflects great credit on Mr. Roy Chadwick, of Avro's. No details may be given but the excellence of the work can be seen from the photographs. A small auxiliary engine is fitted to act as a self-starter to the main power plant.

This set the "Cub" going at once, and after running her up, Mr. Bert Hinkler taxied down the aerodrome and opened up. The machine took off in three seconds and then climbed at an astonishingly steep angle to a thousand feet or so. Mr. Hinkler as soon as he got the feel of the machine began throwing it about and doing vertical turns as though he were flying a scout. For a quarter of an hour or so he demonstrated the remarkable manœuvrability of the machine, and when he came across the aerodrome with the "Cub" going full blast and giving a most pleasing roar one estimated the speed to be in the neighbourhood of 140 m.p.h. Finally he made a very slow landing pulling up in a surprisingly short distance.

To commemorate the event Mr. H. T. Vane, on behalf of D. Napier and Son Ltd., presented Mr. Hinkler with a silver cigarette case containing a split infinitive.

After this flight F/O. C. R. Carr, of Antarctic fame, came in from Gosport on a "Snipe" and made an *emotionant* landing.

After lunch Mr. Hinkler brought out a "Bison" [That *is* the correct spelling. It is appositely a fleet spotter with a Napier "Lion."—ED.] and with Mr. Robbins, a director of Napier's, as a passenger gave an exhibition flight during which he carried out various half rolls and otherwise threw the machine about upside down to the great delight of the Messrs. Vane senior and junior, as this was Mr. Robbins' first time in the air. However the latter appeared to thoroughly enjoy himself. A very successful and instructive day but oh, naughty Mr. Jones, for the split infinitive it is so catching.

G. D.

COMMERCIAL AERONAUTICS.

The London Terminal Aerodrome.

AIR LINE ARRIVALS AND DEPARTURES.

ANALYSIS OF FIGURES.

For week ending Dec. 17th.

LONDON—PARIS:

Handley Page Transport, Ltd., machines 9*, passengers 52. C.M.A. Air Lines, machines 3†, passengers 9. Cie. Grands Express Aeriens, machines 1*, passengers 3. Total machines 13, passengers 64.

LONDON—COLOGNE:

Instone Air Line, Ltd., machines 5*, passengers 20.

MANCHESTER—LONDON—AMSTERDAM:

Daimler Airway, machines 11, passengers, Manchester-London, 20. London-Amsterdam 10.

LONDON—ROTTERDAM:

K.L.M., machines 7*, passengers 9.

SPECIAL MACHINES. 0.

Total number of trips by British machines: 25, carrying 102 pas.

Total number of trips by foreign machines: 11, carrying 21 pas.

Trips per day.—Monday, 9; Tuesday, 11; Wednesday, 2; Thursday, 0; Friday, 6; Saturday, 0; Sunday, 2.

STATISTICS.

Machines, 36; Passengers, 123; Crews, 70; Total Personnel, 193.

Corresponding week last year:—

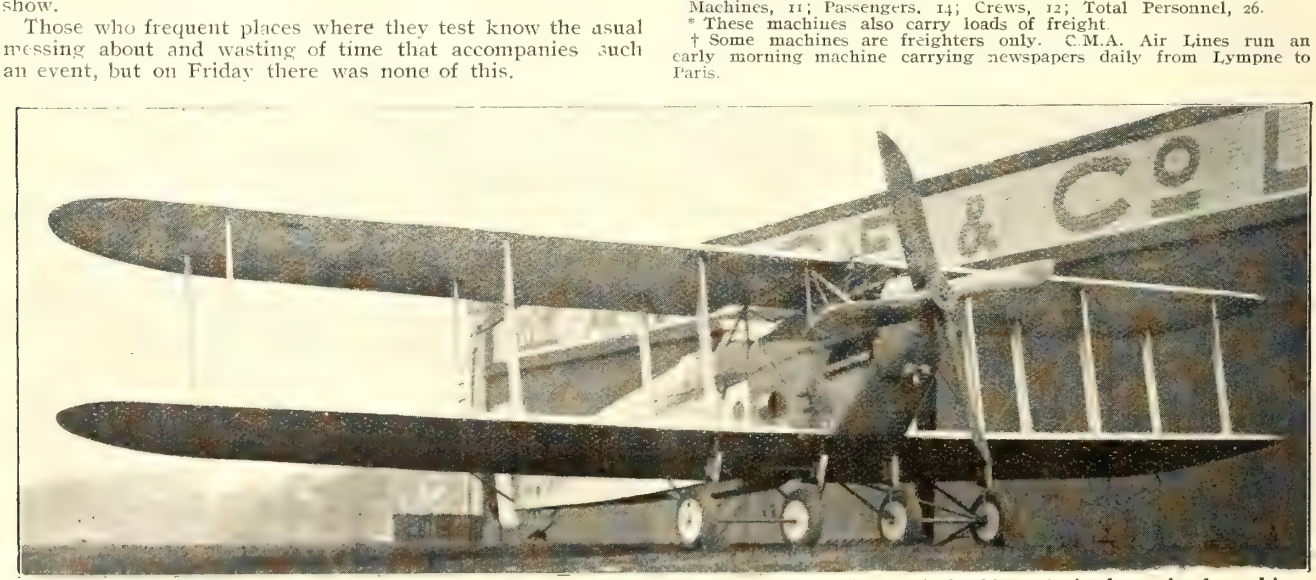
Machines, 11; Passengers, 20; Crews, 19; Total Personnel, 39.

Corresponding week, 1920:—

Machines, 11; Passengers, 14; Crews, 12; Total Personnel, 26.

* These machines also carry loads of freight.

† Some machines are freighters only. C.M.A. Air Lines run an early morning machine carrying newspapers daily from Lympne to Paris.



THE "CUB" RAMPANT.—The "Avro-Napier" with the 1,000 h.p. Napier "Cub," the biggest single-engined machine in the world which has the climb and manœuvrability of a Scout.



NOTES OF THE WEEK.

(For week ending December 11th).

A.D.C. Policy.

Mr Perry was testing the Rolls-Royce D.H.9a for the Aircraft Disposal Company on Saturday of last week and on Monday Capt. Stocken was up on the same machine. On Tuesday he took it to Brussels again whence he had brought it a few days previously. On Thursday Mr. Perry was testing an Avro.

One gathers that there is likely to be a change of policy in the A.D.C. in the not-too-distant future. Naturally as a disposal company pure and simple they will come to an end when their stock is sold, and so it is not surprising to hear that they are getting together a designing staff. With all the experience gained in the fitting up and equipping of fighting machines they will be in a very strong position for the actual production of original types.

The Air Lines.

The Air Lines are still going strong and have carried more than three times the number of passengers they carried during the corresponding week last year.

All lines will close down on the 24th, 25th and 26th to give the pilots, staff and machines a well-earned Christmas Holiday.

On Wednesday Mr. Barnard was giving one of the Instone D.H.34s a test. They continue to run the Cologne service with De Havilland stock exclusively, the 34s landing at Tirlemont for petrol and the 18s going right through.

Enter the Slot Wing.

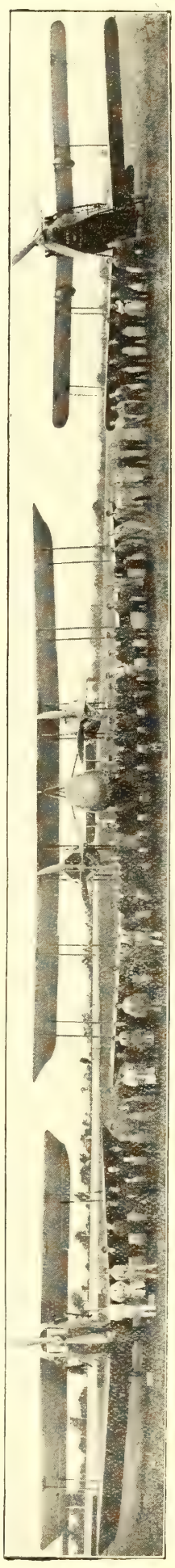
Handley Page Transport in spite of the bad weather have had quite a fair week. On Monday of this week Mr. Wilcockson left for Paris on the "Hanley" torpedo machine, fitted with a Napier "Lion" engine. This is the slot wing machine which is being exhibited at the Paris show. Mr. Wilcockson came over from Cricklewood on Friday but bad weather held him up at Croydon until Monday. He made a very good take-off and accomplished the journey from Croydon to Paris in two hours and twenty minutes.

Other Routes.

The Daimler Airway have carried thirty-eight passengers on the Manchester route, making the double trip every day except Saturday, when the fog was too thick to the North for "flying" before midday.

Mr. Muir took a special passenger to Brussels on Wednesday in the Surrey Flying Service D.H.9 and returned empty as to the machine on Thursday. Mr Youell was carrying passengers in the Avro on Thursday and Saturday.

The K.L.M. as usual got through on practically every trip, the only one they missed being the inward trip on Wednesday. It is amusing to remember that until this year the Amsterdam route has always been closed in the winter as it was said that the fogs of Holland would prevent flying. And yet this service has shown the highest percentage of reliability.—G. D.



A LINK WITH GERMANY.—The pilots, staff and some of the stock of the Instone Air Line which operates the service to Cologne. The centre machine is the firm's original Vickers Vimy "City of London" (two Rolls-Royce "Eagle VIII"), on the left is a Vickers "Vulcan" (Rolls-Royce "Eagle VIII"), and on the right a D.H.34 (Napier "Lion").

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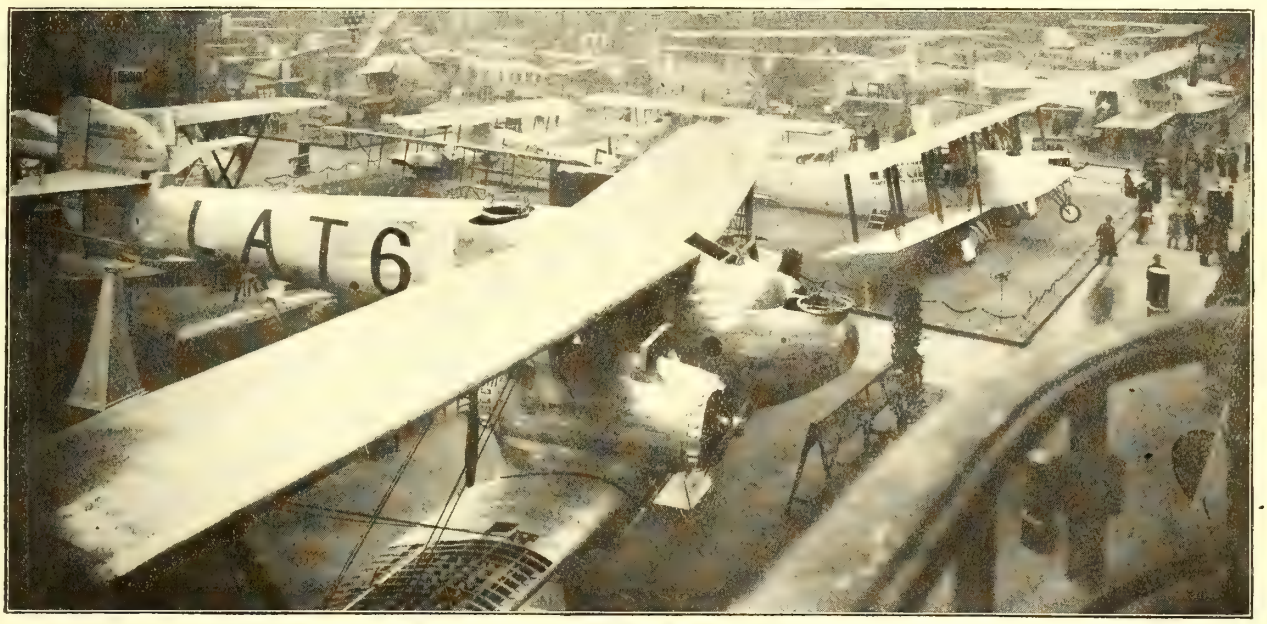
THE AEROPLANE

Edited by C. Gorey

WEDNESDAY, DEC. 27, 1922.

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THE THREE GIANTS.



(*Photograph by Branger.*)

AT THE PARIS SHOW:—In the foreground the four-engined and multi-rivetted LAT.6. In the middle the three-engined Caudron. And beyond it the three-engined Potez.

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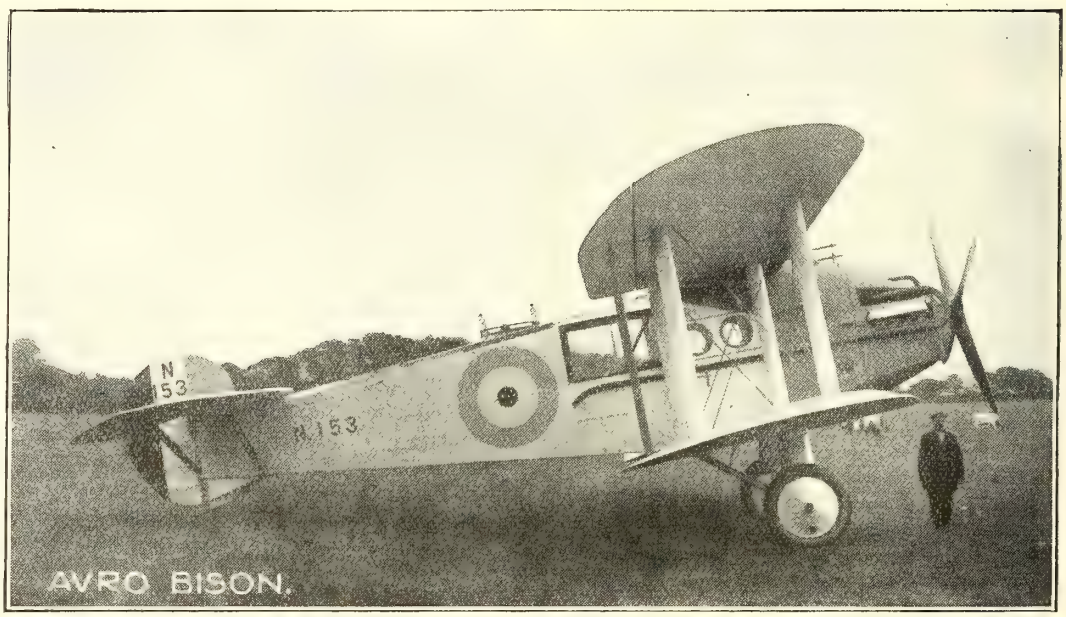
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DEC. 27. 1922.

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ON THE PARIS AERO SHOW—II.

There is one matter on which the Management of the Paris Show deserves special commendation and that is the new scheme of decoration. At all the aero-shows and automobile shows in Paris for many years past the stands have been uniform, to the extent that the signs have been standardised and put up by the management of the show and the effect has been good, but this year the arrangement has been far better than ever. The signs have been put higher up, so that it is possible not only to get a view of the whole show from the gallery but to see every sign from the floor. Thus when one wants to locate a certain stand on entering the hall it can be found at once

Contrasted, with the higgledy-piggledy, vulgar, glaring, obscuring, irritating disarrangement of Olympia under the management of the Society of Motor Manufacturers and Traders the beauty and orderliness of the Grand Palais is enough to make one weep with envy. The quiet dignity and classic beauty—albeit somewhat Oriental—of the Grand Palais scheme gives one on entering the feeling that here is a somewhat Byzantine temple worthy of the importance of aviation and with something of that mystery which still enters into the art and science of flying. Olympia, whether for an aero-show or a motor show, has the garishness and disorder and vulgarity of a country fair and one's chief feeling on entering is a mild wonder as to why the organs of the round-abouts have all stopped at once.

Some day the Society of British Aircraft Constructors will be able to afford an aero-show of its own. It will be interesting to see whether the Managing Committee will have the sense and the strength of mind to abolish all the separate signs of the different firms and instal a uniform official scheme of signs on the lines of those at the Grand Palais. All the important people in the S.B.A.C. have been or are going to the Paris Show and presumably they have all been to Olympia. Being aircraft people they cannot fail to be at least threatened with intelligence and so they cannot very well have escaped noticing the superiority of the Grand Palais scheme over that usual at Olympia. So one hopes that in due course they will do what is necessary to raise Olympia, or wherever our show is to be held, to something like the level of the French Show in appearance and convenience.

As to the general management of the French Show one has no comments to make this year, in contrast to last year when one had several things to say. The reason is the very good one that one had no dealings with the management of the Show. Thanks to the kindly forethought and courtesy of Commander de Sablé, Air Attaché to the French Embassy in London, two "Cartes Permanentes" for the Aero Show were sent to THE AEROPLANE from the Embassy. These enabled Captain Sayers and Mr. Bridgman to go about their technical work adequately, and one is duly grateful to Commander de Sablé for his kindness. For oneself one has always agreed with the man who having been given a free pass for a bad play went out after the first act and paid to come in again so that he could hiss with a clear conscience. One was only pleased to find that, having similarly preserved one's independence of conscience, there was so little at which to hiss in the Paris Show.

As one indicated last week our gallant Allies are making distinct progress in aviation. If they persevere they may in a few years overtake the point already reached by the Germans in metal construction and aerodynamics and by our humble selves in metal construction and aero-engine design.

The French are desperately in earnest and really keen on aviation and the development of air power, as is shown by the colossal circulations of those excellent publications, *L'Air*, *L'Aéronautique*, *Les Ailes* and *Aéro-Sport*, all flourishing as the result of official and popular interest, while we in this rich country, leading as we do in the science and practice of aircraft design do not even provide a living for our two emaciated little aviation papers.

One was told in Paris on excellent authority that the printing bill alone of the special aero-show issue of *L'Air* was close on £3,000 at the current rate of exchange, and that is without any office or overhead charges. Such a sum of money would pay the advertisement account of the whole of the British Aircraft Industry, so far as its trade papers are concerned at any rate, for six months or more.

Some day perhaps the British Aircraft Industry will awake to the fact that just as a man is judged by the company he keeps so an Industry is judged by the trade papers it keeps. One has done one's best in the Special Foreign Issue of THE AEROPLANE to uphold the status of the British Aircraft Industry but one cannot pretend that it compares with the Paris Show Issue of *L'Air* or of *L'Aeronautique*, and one offers sincere congratulations to M. Roche d'Estrez and to M. Bouché on their well-deserved success.

When every British aircraft firm realises that it will pay it to spend the salary of a moderately efficient clerk on advertisment space in THE AEROPLANE then it will be possible for one to give the British Aircraft Industry every week a representative paper worthy of our aircraft designers and constructors. The Paris Show has again demonstrated that where design and construction are concerned we are still well ahead. But anybody who has seen the Grand Palais and the Show issues of the French aircraft trade papers will have some difficulty in believing such to be the facts.

However, THE AEROPLANE has survived the past year, thanks partly to the loyalty of a few good friends in the impoverished Aircraft Industry and partly to the generosity of its publishers Wm. Dawson and Sons Ltd., who have been content to lose money on the paper because of their faith in the future of aviation and in the need for air-power. It may perhaps be that in the coming year the British Aircraft Industry will be in a position to spare enough money to supply the upkeep of a paper worthy of the importance of the Aircraft Industry to the British Empire.

In any case one can assure all concerned with British Aviation that one of the chief aims of THE AEROPLANE is to present the pre-eminence of our designers and constructors adequately to the World. The only aim which takes precedence of that is the welfare of the Royal Air Force, and as the welfare of the R.A.F. depends so intimately on the welfare of the Aircraft Industry one may safely say that the two aims are one. In the meantime one would direct the attention of all concerned to the effect which the huge success of the Paris Show and of the French aviation papers must have in convincing people of other nations that France still leads in aviation.

One's greatest ambition for the New Year is that the British Aircraft Industry may be able in 1923 to demonstrate that in fact it is, as many of us know it to be, ahead of the rest of the World. And one hopes to be able to assist adequately in proving that fact. With which one proceeds to wish all readers of THE AEROPLANE a Happy and Prosperous New Year.—C. G. G.

PEACE AND GOODWILL TOWARDS MEN.

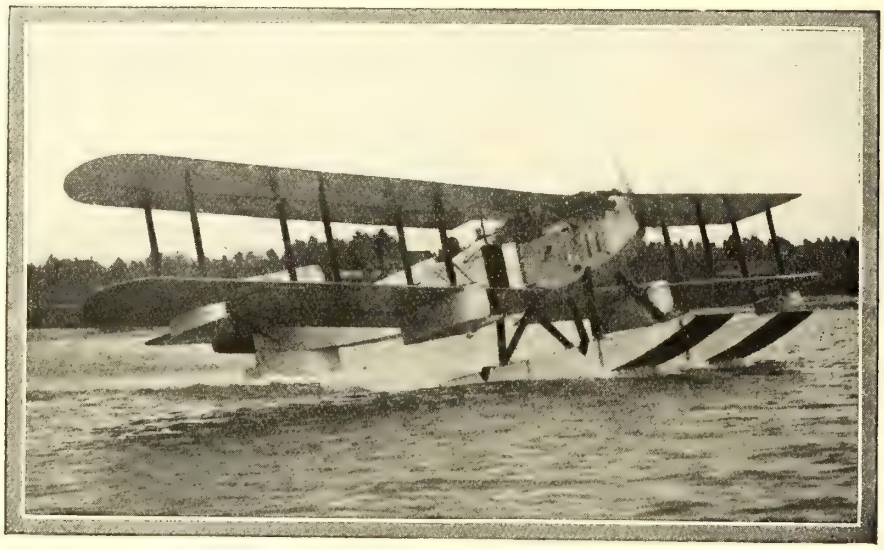
The first German aeroplane to leave Germany for England since August 1914 with perfectly good intentions left Berlin on December 15th for Croydon. This was a commercial Albatros belonging to the Deutsche Luft Reederei which was returning the visit paid to them by officials of the Daimler Airway recently. One gathers that the pilot is familiar with the route as during the War 1914-1918 he carried out numerous raids on London.

In spite of this, or rather because of this, he may assure himself of a hearty welcome among aviation people over here, particularly from the fighting pilots as it has been found that there is nothing pilots of both sides enjoy more than exchanging reminiscences and trying to discover if they ever met as combatants.

One gathers that the Daimler Airway, the Deutsche Luft Reederei and the K.L.M. have come to an agreement whereby the Air Route from Croydon to Berlin will be opened up in February next.

This is a very hopeful sign for lasting peace, extra prosperity and a general revival of trade in the near future. C. D.

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BEN

THE PARIS SHOW ALPHABETICAL REPORT—II.

LATECOERE.

Here is one of the amusing machines of the show, an enormous four-engined all-metal biplane for whose design or existence it is a little hard to imagine a reason. No doubt there is good reason for experimental all-metal machines, but why try the experiment on the biggest possible machines of more or less freak design with provedly inefficient arrangements of the power-plant?

This machine, known as the LAT.6, is a biplane with four Salmson engines of 250 h.p. each arranged in tandem pairs on the lower planes with bee's-nest radiators above them. As one has remarked apropos of the machine's next-door neighbour the Schneider, we in England and our late enemies the Germans found before the end of the war that tandem engines are a mistake so it is rather sad to find the French using them on their very latest experimental machines.

The fuselage fills up the whole space between the planes but the lower half of it stops short just aft of the trailing edge where a sort of "counter," as in a yacht, sticks out to provide a habitacle for a lower-deck rear gunner. The upper half of the fuselage continues for many yards level with the upper plane, recalling the quaint seaplane built in Germany in 1915 or thereabouts to the designs of Herr Ursinus of *Flugsport* and also recalling the still quainter "Sparrow" built about the same time by the Blackburn firm to the designs of Mr. Harris Booth.

At the end of this vista of fuselage are three great metal rudders, which would probably blanket one another if the machine began to spin. And between and outside them are four elevators.

The undercarriage is necessarily very wide and is of the type usual on small machines. That is to say it is not two separate units, one under each engine-unit, as is usual on big machines. The twin-tyred wheels are connected by two enormous horizontal tubes which are presumably intended to fulfil the functions of cross-bracing between the undercarriage struts. It looks as if in spite of the size of the tubes the whole undercarriage would remove itself in a cross-wind landing.

The general structure is of duralumin or some similar aluminium alloy and follows more or less Zeppelin methods. And the whole of the covering of wings and fuselage is of duralumin sheet secured by the maximum possible number of rivets. Altogether one has seldom seen an aeroplane which one likes less. M. Latecoère must have a lot of money to be able to afford to build such a machine. It seems a pity that he does not spend it to better advantage in trying experiments with a number of smaller machines. But, seeing that the machine is purely for military purposes, it is possible that it is in fact built to the ideas of the French Army's Section Technique which seems to have even queerer ideas than has our own Technical Department, besides having a heap more money to waste on them.

Specification of the Latecoere LAT.6.

Span top 28 m. 05	Engines 4, Salmson, 260 h.p.
Span bottom 20 m. 63	
Length overall 15 m. 74	Wing loading...45.15 kg./m².
Chord top 3 m. 20	Power loading...5.26 kg./h.p.
Chord bottom 2 m. 10	Expected speed, sea level 230 km.h.
Height overall 5 m. 65	
Area of wings ...116.5 sq. m.	Expected speed, 4,000 m. 213 km.h.
Weight empty 2,980 kg.	
Weight loaded 5,260 kg.	

LEVASSEUR.

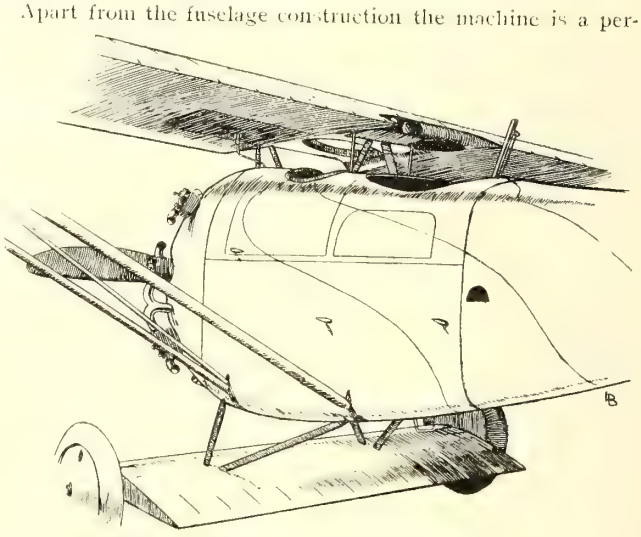
The Levasseur Three-Seater.

This machine is a development of the type of construction used in the interesting little three-seater shown at the last Salon. Apart from the method of construction it is a very straightforward conventional biplane, and is intended for naval reconnaissance.

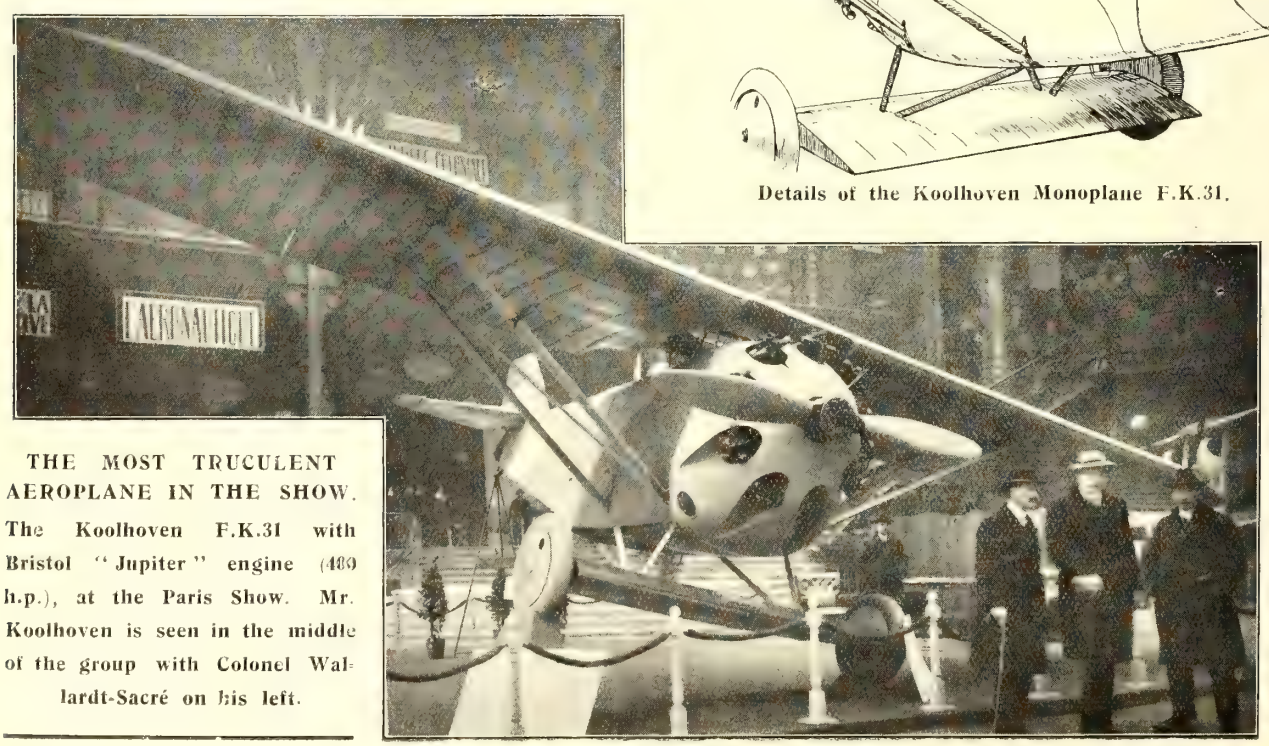
The fuselage is in three sections. The front section is a steel tube cantilever carrying the engine—a 370 h.p. Lorraine. The central section, which includes the undercarriage consists of two large panels of multiply wood, carved out to shape. These panels "tumble home" from the full width of the undercarriage at such an angle that they would nearly meet at the level of the upper plane, and they are separated by the axle and by four large diameter steel tubes—two at the bottom and two at the top of the fuselage properly so called.

The after end of the fuselage consists of two side panels of carved out multiply, separated top and bottom by three-ply reinforced with light stiffeners of spruce. It is understood that the whole fuselage is to be three-ply covered, and made watertight to give buoyancy and to allow the machine to alight on the water, though no provision is made for getting off. There does not however appear to be any arrangement to secure that the machine shall not turn over on its wheels when striking the water.

Apart from the fuselage construction the machine is a per-



Details of the Koolhoven Monoplane F.K.31.



THE MOST TRUCULENT AEROPLANE IN THE SHOW.

The Koolhoven F.K.31 with Bristol "Jupiter" engine (480 h.p.), at the Paris Show. Mr. Koolhoven is seen in the middle of the group with Colonel Wallardt-Sacré on his left.

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1921. Aerial Derby—winning machine fitted with Napier engine.—Speed 163.34 m.p.h.

1921. Aerial Derby—machine winning Handicap, fitted with Napier engine.

1922. Schneider Cup — International Flying Boat Trophy—won by Supermarine with Napier engine.

1922. Aerial Derby — winning machine fitted with Napier engine.—Speed 179.62 m.p.h.

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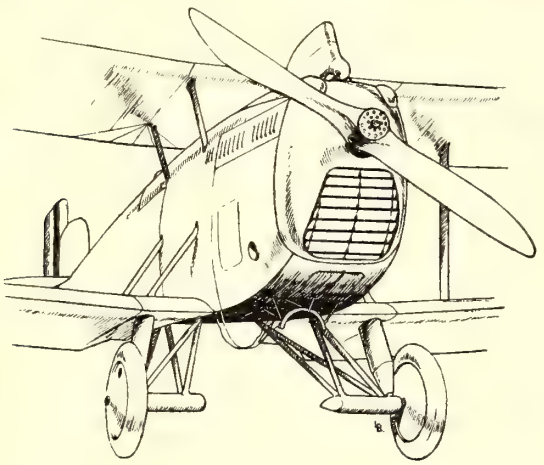
fectly normal unstaggered, two bay biplane,—quite well made —but possessing no very striking features.

Specification of the Levasseur "Marin."

Type ...Naval reconnaissance and fleet spotting	Span 14 m. 50
Height 3 m. 38	Length 9 m. 30
Chord 2 m. 25	Total weight 2,100 kg.
Wing area 58 sq. m.	Engine Lorraine, 370 h.p.
Weight empty 1,335 kg.	Wing loading.....37 k.g./m².
Weight of fuel 310 kg.	Power loading ...5.6 kg./h.p.
Weight, crew and load ... 455 kg.	Speed, sea level ...180 km.h.
	Speed, 4,000 m. ...170 km.h.
	Ceiling 5,000 m.

The Levasseur Torpedo Carrier.

This machine is one understands the same which in skeleton form appeared at last year's Salon. It has since then been through extensive and one gathers very satisfactory trials. In its skeleton form it was obvious that the machine bore a very close relationship to the Blackburn "Swift," and it was in fact admitted that the design had been based largely on data supplied by the Blackburn firm. In its completed form the resemblance to the "Swift" is distinctly less obvious. The chief difference in fact lies in the line of the engine cowling. The 550 h.p. Renault is a much higher engine than the Napier "Lion" or the "Swift" and the slope from the pilot's seat to the nose which gives to the "Swift" so unmistakable an appearance is not present in the Levasseur. There are numberless other differences of detail—the wings of the Levasseur have not the slight sweep back of the "Swift," and the dimensions are somewhat different. But nevertheless the Levasseur torpedo carrier looks like an English torpedo carrier, and that says a good deal in its favour.



Specification of the Levasseur A.T.1.

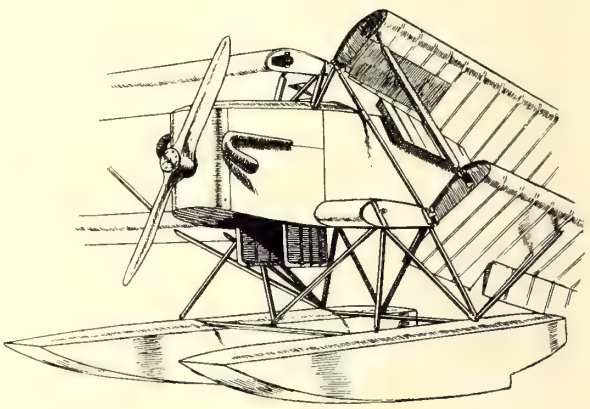
Type Torpedo Carrier.	Weight, loaded 3,300 kg.
Span 15 m. 25.	Engine Renault 550 h.p.
Span folded 5 m. 50.	Wing loading ...45.5 kg./m².
Length 10 m. 65.	Power loading 6 kg./h.p.
Wing area 72 sq. m.	Maximum speed ...160 km.h.
Weight, empty 2,150 kg.	Min. stalling speed 85 km.h.

pilot's seat is right aft the wings. The wings are of normal biplane type, equal in span top and bottom and without stagger. The engines—two 180 h.p. Hispano-Suizas—are carried between sets of V struts which carry the upper centre section. Outside of these there is one row of struts only. The wing bracing is of streamline wires. The wings are of the Joukowski type of profile which has recently become so popular in France and look to be very closely of the Göttingen 430 section.

The tail is of normal design, and consists of a fin built up as part of the hull, carrying a monoplane tail plane and elevators and a balanced rudder.

The Lioré et Olivier Flying Boat.

Type ...Passenger-carrying Fying boat (L.E.O. H.16)	Weight of crew, passengers, etc. 550 kg.
Span 16 m. 00	Weight loaded 2,450 kg.
Length 11 m. 50	Engines ...2 Hispano-Suiza 180 h.p. each
Height 3 m. 70	Wing loading ...42.2 kg./m².
Length of hull 10 m. 85	Power loading ...8.2 kg. h.p.
Wing area 58 sq. m.	Estimated speed ...160 km.h.
Weight empty 1,600 kg.	
Weight of fuel (4 hours) 300 kg.	

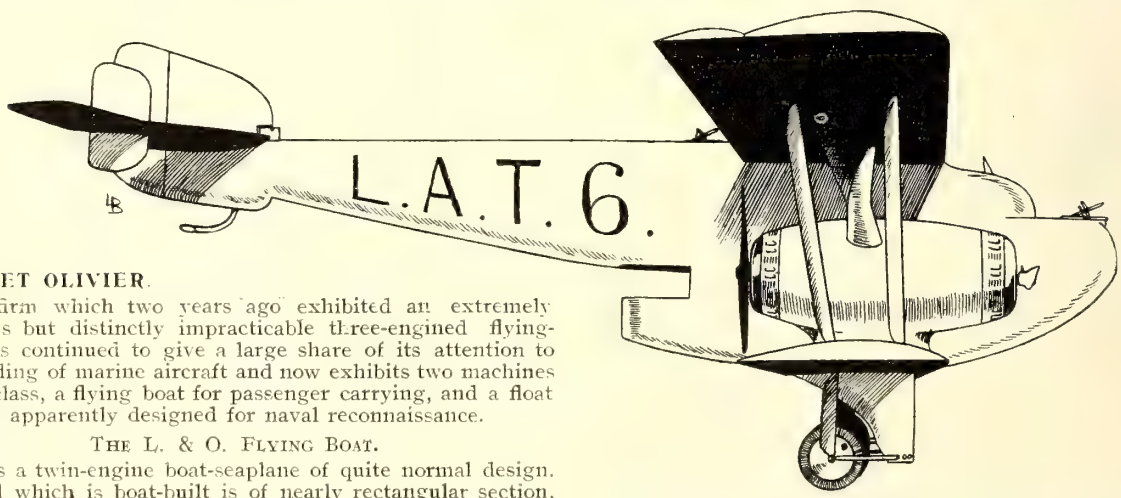


The L. & O. Float Seaplane.

The most noticeable feature of this machine is the system of wing bracing employed. Struts in the form of inverted V's run from the front and rear spars on the centre line of the machine down to the floats, and are tied together by the usual float axles. In these inverted Vees the fuselage is carried.

From the junction of the rear float axle with the legs of the above-mentioned struts other struts run outwards to front and rear spars of the bottom wing and thence to the front rear spars of the top plane. So far the bracing is very similar to that used on certain of the P.V. machines built at the Isle of Grain during the war.

But in this case the bottom wing is of span and chord equal to the top plane, and the overhang of the bottom wing is supported by a further pair of struts running downwards and outwards from the top plane and strut junctions.



THE L.A.T.6.—The biggest and certainly the ugliest machine in the Show. It has four Salmson engines of an alleged 250 h.p. each, and is built entirely of Duralumin, wing covering and all.

LIORE ET OLIVIER.

This firm which two years ago exhibited an extremely ingenious but distinctly impracticable three-engined flying-boat has continued to give a large share of its attention to the building of marine aircraft and now exhibits two machines of this class, a flying boat for passenger carrying, and a float seaplane apparently designed for naval reconnaissance.

The L. & O. Flying Boat.

This is a twin-engine boat-seaplane of quite normal design. The hull which is boat-built is of nearly rectangular section, with a Vee bottom at the bows which however washes out towards the step. In the fore end of the hull a cabin for four passengers is arranged. This cabin gives quite fair room when the passengers are seated, but lacks head room. The

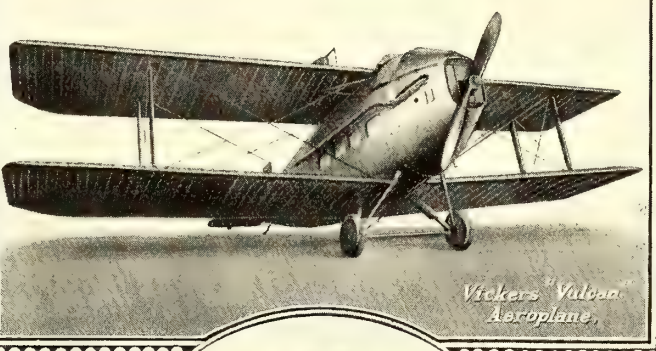
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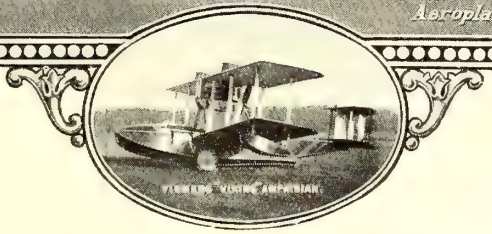
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The rear float "axle" is vertically below the rear spars. All the rear struts lie in a vertical plane. The struts up to the bottom front spar rake forward at some 30°. There are streamline wire bracings between the both sets of interplane struts and drag bracings forward to the float from the lower and to the fuselage from the upper wings.

The wings fold on a hinge line parallel to the rear struts which embrace the fuselage and are prolonged down to the float. As this line is inclined very considerably to the vertical the wings when folded take up a distinctly curious position—which is shown in a sketch.

The wings are of the same section as is used on the flying-boat, and like those wings, are cut off square at the tips as in the Farman machine.

Ailerons are fitted on bottom wings only and are of very narrow chord.

The floats are of the single step type and of a form strikingly similar to those generally used on the later German float seaplanes. They are of very considerable length, and no tail float—or water rudder—is provided.

Both these L. and O. machines have quite good lines and are well made and finished. They are generally of standard timber construction, with metal struts. Steel tube is generally used for this purpose, with duralumin fairings. But for some curious reason the designer has seen fit to use bronze of some sort for many of the fittings—such as for the nuts on the strut end fittings—and one would be greatly surprised if the admixture of metals when exposed to salt water did not lead to very serious corrosion trouble.

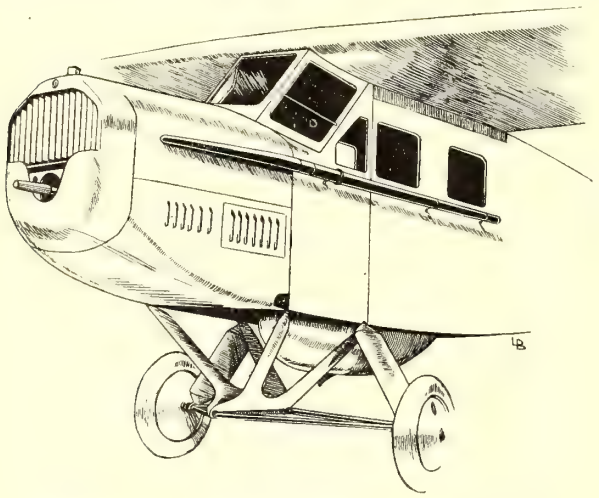
The Liore et Olivier Float Seaplane.

Type ...Two-seater reconnaissance and fighter machine (L.E.O.H.10)	Wing area 59 sq. m.
Span 15 m. 00	Weight empty 1,705 kg.
Span folded 6 m. 0	Weight of fuel 295 kg.
Length 10 m. 45	Crew and armament...450 kg.
Height overall 4 m. 25	Total weight 2,450 kg.
Chord 2 m. 10	Engine Lorraine, 370 h.p.
	Wing loading ...41.5 kg./m².
	Power loading...6.53 kg./h.p.

MORANE-SAULNIER.

The famous old Morane-Saulnier firm, which has from time to time produced some of the world's best speed-machines, show a cantilever monoplane which is quite pretty and singularly unoriginal. If you imagine a Fokker wing stuck on top of the fuselage and cabin of the Ansaldo limousine the whole being mounted on the undercarriage of Mr. Koolhoven's F.K.26, commonly known as the "Big Bat," you have a very good idea of the whole machine. It is painted white with black points and the workmanship and finish are up to the best Morane-Saulnier standard. Apart from that there is little to be said about it beyond the fact that it has a four-seater *conduite interieur* cabin and a Hispano-Suiza engine with a honeycomb radiator in front like a car.

The firm also exhibits a parasol school monoplane with a Le Rhône engine and a forest of wires, 24 load-wires under the wing alone. It looks singularly pre-war, but the type has proved itself good for school work.



Specification of the Morane-Saulnier, Type A.V.

Type ...Touring four-seater, interior drive cabin	Engine ...Hispano-Suiza, 150 h.p.
Span 13 m. 62	Wing loading ...43.3 kg./m².
Length 9 m. 53	Power loading ...10 kg./h.p.
Chord 2 m. 25	Estimated speed ...170 km.h.
Area 31 sq. m.	Estimated landing speed 50 km.h.
Weight empty 1,100 kg.	
Weight loaded 1,500 kg.	Estimated ceiling ...4,000 m.

NIEUPORT-ASTRA.

The 29 C1.

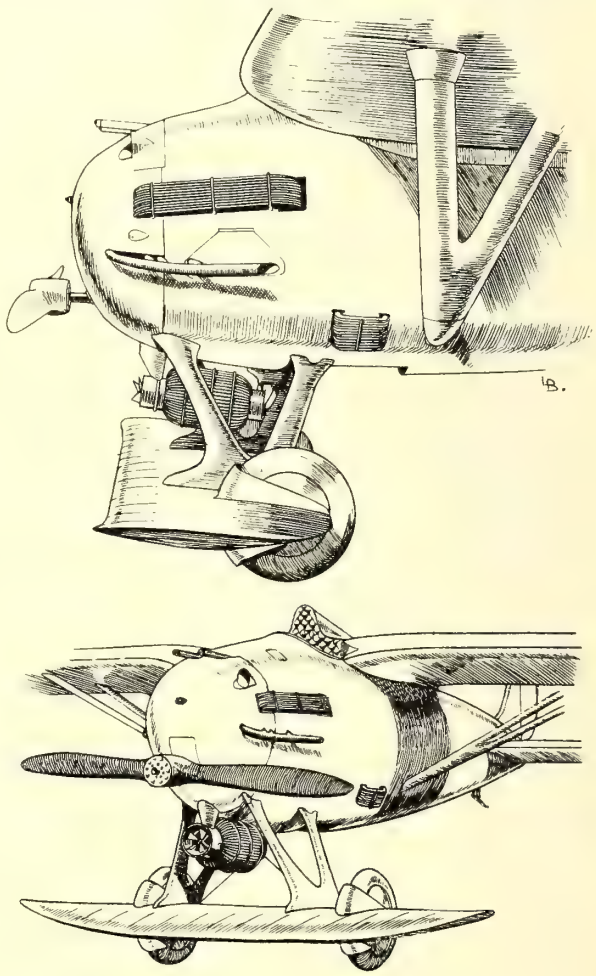
This firm shows two examples of their famous type 29 machine. One of them is a standard 29 C1 single-seat fighter as shown at last year's Salon with the exception that it is fitted with wings of the very curious thick section employed on the "Sesquiplan" which failed to perform in this year's race for the Deutsch Cup. This section is very nearly a symmetrical streamline, but in fact it has a slight bend downwards at the trailing edge. One imagines that it is one of the Joukowski profiles of small centre line camber—which according to model tests have an extremely low resistance at fine angles, and so should be extremely good for very high speeds. The maximum thickness at about the position of the front spar is at least 9 inches. Apart from the wing the machine is precisely as it has been for the past two years—in fact the wing roots built into the fuselage are of the original thin section and the lower planes do not achieve the new section for nearly a foot from the roots.

The other type 29 is one of the type with which Lasne won this year's Deutsch Cup race, fitted with machine guns, etc., and posing as a single-seat fighter. Actually one imagines that it is a standard 29 C fuselage completely equipped to which the cut down racing wings have been attached.

The design, workmanship and finish of the Nieuport exhibit is as always of the very first class, and one cannot be surprised at the fact that these little 29 C fighters have been ordered by the French Government by hundreds.

The Nieuport Delage 37 C1.

This machine is practically the new "Sesquiplan" which would not fly at the Deutsch Cup race. To secure that it shall leave the ground the nearly symmetrical wing section has been altered to one of equal thickness with a flat



under-surface. The machine is equipped with a 300 h.p. Hispano, a Rateau Supercharger, and a pair of machine guns, and is exhibited as a fighter. It is well made—as are all Nieuports—but it looks all wrong. The new wing section may work—but it looks extremely wrong—and if it does work the tail plane and elevators are in an appalling down wash.

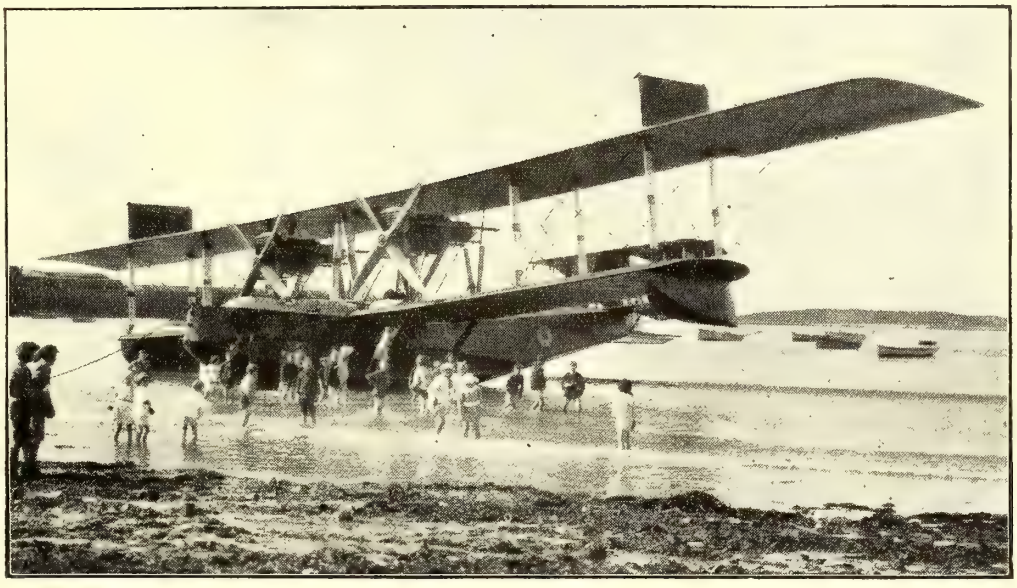
The "sesqui" part of it—ahead of the axle—is a fairly large piece of supporting surface set where it may be expected to interfere as much as possible with the upper wing, and altogether one feels inclined to prophesy that this is one of M. Delage's worst efforts. Still it is of some interest, and

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one would like to have accurate information as to its performance.

Specification of the Nieuport "Sesquiplan," Type 37C.1.

Type Single-seat fighter	Weight empty 980 kg.
Span 11 m. 80	Weight of fuel 180 kg.
Length overall 7 m. 16	Weight of pilot and equipment 220 kg.
Height overall 2 m. 97	Total weight 1,430 kg.
Chord, main wing 2 m.	Engine ... 300 h.p. Hispano-Suiza (fitted with Rateau Supercharger).
Area, main wing 21.18 sq. m.	
Area, auxiliary wing 5.02 sq. m.	Wing loading ...54.6 kg./m².
Total area 26.20 sq. m.	Power loading...4.46 kg./h.p.

PESCARA.

The famous Pescara helicopter is again shown, this time on a full blown stand in the body of the hall. It is, so far as one can see, much as it was last year in spite of some hundreds of thousands of francs (in subsidy) having been spent on it. The fuselage, nacelle, car or what-not now carries a Lamblin radiator where the rudder would be if it had one. The idea of steering a machine by its radiator appeared to please a number of visitors But as the affair does not seem in the least likely to navigate anywhere the radiator might just as well be on the tail as anywhere else.

The most amusing thing on the stand, now that the helicopter itself has become *vieux jeu*, is a model cantilever biplane in which the planes are mounted on a central post and are apparently intended to turn round it in opposite directions converting it into a helicopter, which—if it ever did work—would make it a nice easy mark for enemy aircraft. The big idea, as one observer put it, seems to be that it shall spin to heaven instead of to earth and that it shall ascend, instead of descend, in flames.

HENRY POTEZ.

The Henry Potez firm exhibited three machines, one of them the well-known Type 8 sports machine which scarcely needs description here.

A Reconnaissance Two-Seater.

The next machine—in point of size—is that known as the Type XI CAP.2. A two-seater reconnaissance biplane fitted with a supercharged Lorraine engine and a Levasseur variable airscrew.

This machine is largely built of metal—duralumin—the central section of the fuselage being of wood, and has no features of particular interest.

Considering that it is supercharged it does not appear to possess any performance which justifies its existence.

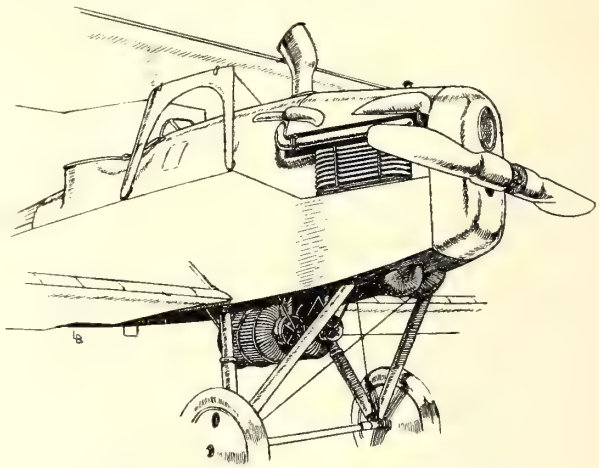
Specification of the Potez Type XI CAP.2.

Type ... 2-seater reconnaissance biplane.	Weight loaded 1,900 kg.
Span 12 m. 70.	Engine...Lorraine 370 h.p. with Rateau supercharger.
Length 9 m. 08.	Wing loading 43 kg./m².
Height 3 m. 16.	Power loading...4.75 kg./h.p.
Chord 1 m. 80.	Speed at 4,000 m....220 km.h.
Area 44 sq. m.	Ceiling 8,000 m.
Weight empty 1,250 kg.	

A Transport Machine.

The third Potez is a three-engined passenger-carrier Type XVIII which is derived from the Type X shown at last year's Salon It is of the conventional one-engine in the nose and two on the wings type, carrying 12 passengers in a cabin which is pretty certainly not large enough for reasonable comfort.

The wings are of a very thick section, and are of equal span and chord. Only one row of struts is fitted on each side



The Henry Potez Reconnaissance Two-Seater.

of the wing engine struts. The undercarriage consists of two more or less normal Vee undercarriages each with one leg under a wing engine and one under the edge of the fuselage. The rear leg of each set of Vees is telescopic and contains shock-absorbers of the Blackburn compressed rubber type.

The machine is of mixed wood and duralumin construction. The wings are of timber, fabric-covered. The cabin part of the fuselage is of wood with three-ply sides. The nose of the fuselage carrying the engine and the after part of the fuselage are duralumin framed.

Specification of the Potez Type XVIII.

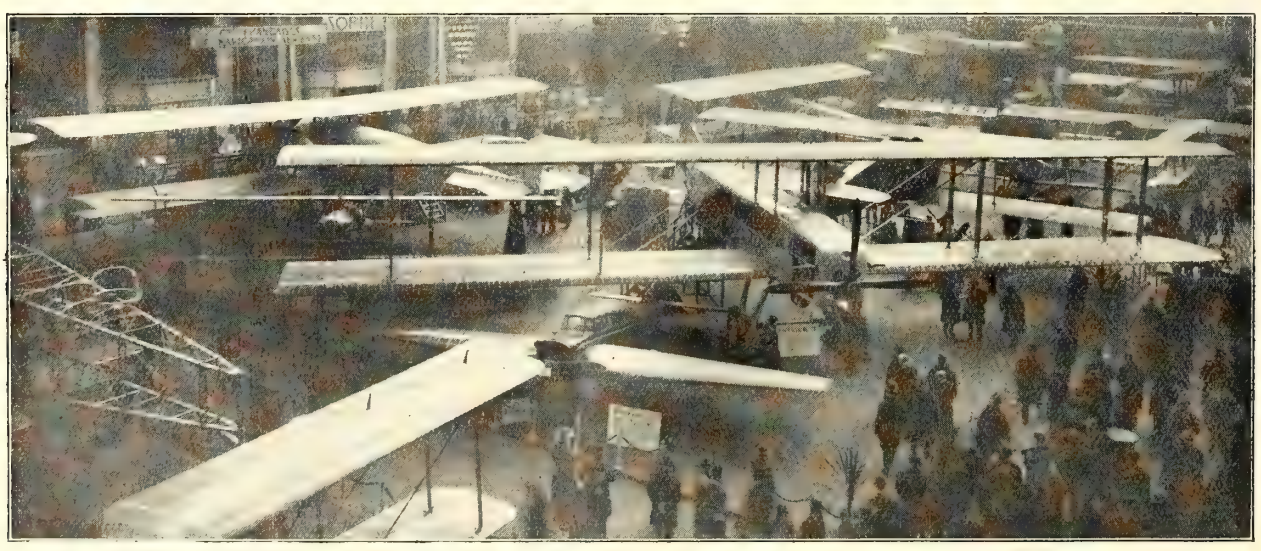
Type. Three-engine 12-seater transport machine.	Crew and passengers, etc. 1,000 kg.
Span 22 m. 00.	Total weight 4,775 kg.
Length overall 14 m. 80.	Engines ... 3 Lorraine 250 h.p. each.
Height overall 4 m. 00.	
Chord 2 m. 80.	Wing loading ...42.5 kg./m².
Total wing area ...112 sq. m.	Power loading ...6.3 kg./h.p.
Weight empty 2,900 kg.	Speed (sea level)...195 km.h
Weight of fuel 675 kg.	Ceiling 5,000 m.
	Radius of action 600 km.

SAVOIA.

The Savoia firm exhibit one of the most recent of their commercial flying-boats, due to the designs of Ing. Marchetti who has now joined this firm. This machine known as Type 55, is a seven-seater single-engine type.

The hull, which is beautifully finished, is an excellent example of boat-building.

From the bows to the step the lines are singularly reminiscient of the work of the late Major Linton Hope—the form of the bottom being convex downwards amidships, with a con-



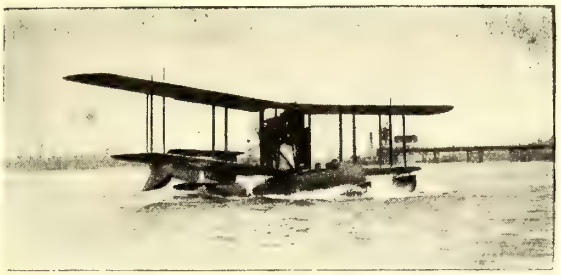
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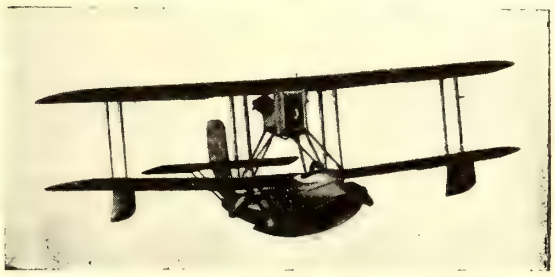
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rave line running out to the chine. Beyond the step the bottom is flat.

The wing structure is a normal two-bay biplane with two bays of bracing per side. The engine is extremely well cowled, and is carried fairly high up in the gap, and drives a four-blade pusher airscrew of somewhat limited diameter for the size and power of the machine.

There are three rows of seats all ahead of the leading edge of the wing. The after one of these seats three passengers side by side. The middle row seats the pilot to port, and accommodates another person alongside. There are two more seats ahead of this—one with an opening into the fresh air—but the other one covered by the deck. This would be uncomfortable for stiff-necked ones as head-room is lacking.

SPECIFICATION OF THE SAVOIA 53.

Wing area 65 sq. m.	Wing loading 39 kg./m².
Weight empty 1,750 kg.	Power loading ...8.5 kg./h.p.
Weight loaded 2,550 kg.	Max. Speed 160 km.h.
Engine ... Fiat A 12 bis —300 h.p.	Landing speed 80 km.h.
	Climb to 2,000 m. ...19 mins.

S.E.C.M.

The Société d'Emboutissage et de Constructions Mécanique which last year exhibited an all-metal two-seater of the type "de tourisme" exhibit this year three more all-metal machines.

These machines all embody the use of sheet-metal stampings—which is the firm's speciality—and there seems to be no very particular reason why any of them should have been built except that of using this particular type of fitting

THE S.E.C.M. TYPE 22.

This is a two-seater school machine, of the single-bay biplane type.

The fuselage is constructed of duralumin tubes held together by rather complicated, but quite pretty stampings of sheet duralumin very much riveted up. The wing spars are trellis work with U section flanges and "Zeppelin" type cross members. The two seats are side by side behind the wings and dual control is fitted.

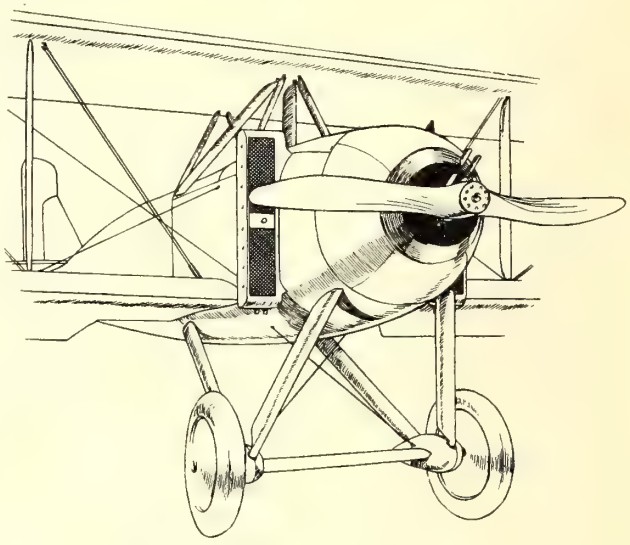
SPECIFICATION.

Type ... 2-seater training machine.	Engine ...Hispano-Suiza 150 h.p.
Span 9 m. 20.	Speed at 2,000 m. ...170 km.h.
Length 6 m. 70.	Ceiling 3,500 m.
Wing area 22 sq. m.	Fuel capacity 3 hours.

THE S.E.C.M. NIGHT-BOMBER.

This is another machine having the same constructional features as the previous machines—except that the wing-spars are here built up trellis girders of duralumin. It is an equal winged biplane, slightly staggered, fitted with very large balanced ailerons, elevators and rudder.

The fuselage is rectangular, and of sufficient cross-section to contain entirely the 500 h.p. radial engine. To add to what our Allies so aptly call the "encombrement" of this part of the machine a pair of enormous side radiators are fitted to it ahead of the wing, with the result that the pilot, whose seat is offset to the port side of the fuselage, can see nothing below the top of fuselage which is less than 15° to port of his line of flight. Presumably as the machine is to fly at night when he will be unable to see anything, this is relatively unimportant.



SPECIFICATION OF THE S.E.C.M. B.N2.

Type 2-seater night bomber.	Engine Salmson Z.18 —500 h.p.
Span 15 m. 40.	Speed at 2,000 m..... 160 km./h.
Length 10 m. 90.	Ceiling 5,000 m.
Weight loaded 2,860 kg.	Endurance 4 hours.

THE S.E.C.M. TYPE 23.

This is a three-seater "de tourisme." The construction is similar to the previously-described types.

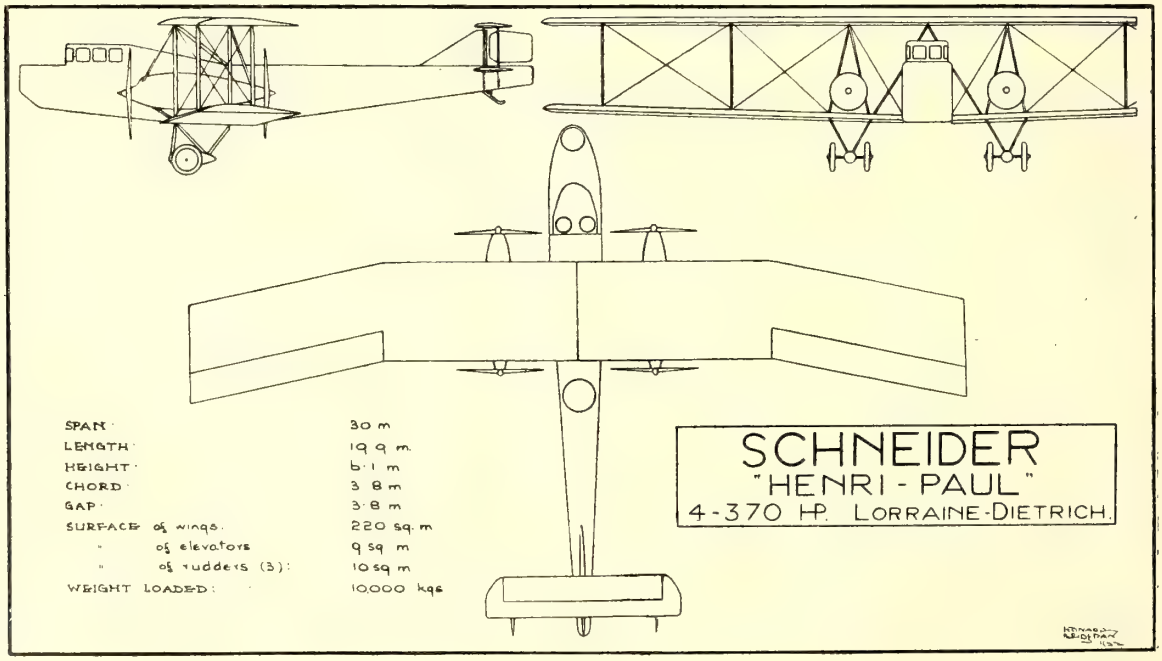
The pilot is under the wings and the two passengers are carried behind in a beautifully-upholstered cockpit. The whole machine is finished in a very pretty black and red colour scheme.

SPECIFICATION

Type Three-seater joyride machine.	Wing loading.....34 kg./m².
Span 11 m. 20.	Power loading 5 kg./h.p.
Length 6 m. 70.	Speed at 2,000 m....170 km.h.
Wing area 26 sq. m.	Landing speed 60 km.h.
Weight loaded 890 kg.	Ceiling 3,500 m.
Engine ...Hispano-Suiza 180 h.p.	Endurance 3 hours.

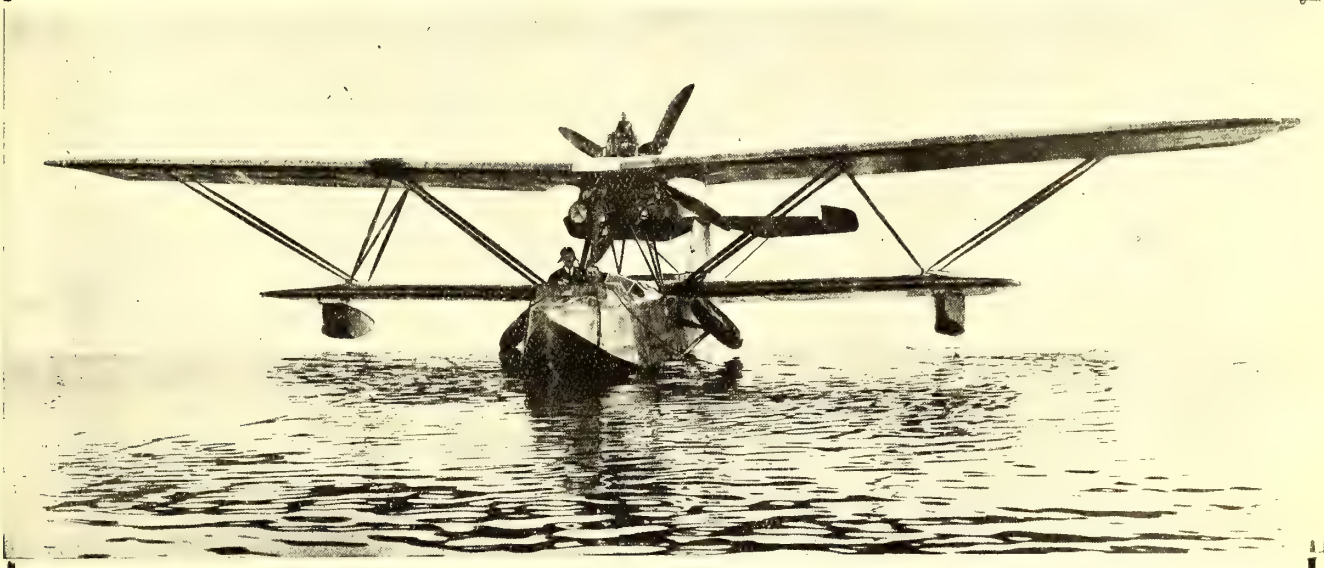
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produced M. Jacques Schneider the donor of the famous international seaplane trophy, and in the early days of motoring was responsible for the excellent Rochet-Schneider cars. The machine is called officially the "Type B.N. 2," which stands for the second type of Bombardement de Nuit produced by the firm. The first type seems to be wrapt in mystery, probably it only got to the drawing-office stage. Unofficially this particular aeroplane is called the "Henri Paul" in memory of the son of the head of the firm who was killed in action.

The chief interest about the machine is the fact that it is built entirely of metal with the exception of the fabric covering of the wings and fuselage. It is impressive because of its size and it is interesting because of some details of construction, but apart from that it is one of the ugliest aeroplanes one has seen and one does not imagine that it can be of any particular use for war purposes. The Germans, who have forgotten more about multiple-engined aeroplanes than the French have begun to learn, realised as far back as 1917 that there was no use in four-engined machines with engines in tandem. We found as much in 1918 with the big Handley Pages, which, though they lifted big loads simply because of their huge size, did not actually carry as much useful load per horse-power as could have been carried by smaller machines at the same speed.

In fact the tandem-engined aeroplane has been known to be impossible to wrap each bunjy-rubber round the axle great engineering firm solemnly turning out a machine with four engines (Lorraine-Diétrichs) of 370 h.p. each and putting them two-and-two in tandem. They are neatly housed in power-eggs with honeycomb (or bee's-nest) radiators and the workmanship is good.

The wings sweep back sharply from the struts on which the power-eggs are mounted. But otherwise the machine is a biplane of the most ordinary type and might easily be taken for a very much enlarged Farman for it has the same long thin fuselage with a projecting nose and a many-surfaced box-kite tail-unit.

The undercarriage is mildly interesting because of the way in which the colossal axles are sprung. Obviously it would be impossible to wrap each bunjy-rubber round the axle to work effectively under such an enormous weight. Therefore each axle carries a sort of cantilever arrangement the ends of which are slung by bunjies from the fore and aft extremities of the undercarriage. It is neat and ingenious but one would have expected a big engineering firm to have produced a really scientific oleo-pneumatic gear for a machine of such size, where there is weight to spare.

SOCIETE INDUSTRIAL DES METAUX ET DU BOIS.

This firm—formerly known as Etablissements Bernard—showed a very beautifully-built all-duralumin single-seat fighter. The machine is a cantilever monoplane with the wing at the bottom of the fuselage, and a cantilever undercarriage.

The fuselage is of a triangular section, with rounded corners. The undercarriage is in the form of an inverted T, the shank of the T being built into the fuselage below the wings, and the head is a beam of wing section which encloses the wheel-axies.

The wings are faired into the stalk of the T, but their upper surface cuts into the fuselage side without any appreciable fillet.

The fuselage is built on box-section duralumin formers covered with longitudinal duralumin sheets. These sheets have their edges flanged inwards, and over the interned edges are riveted longitudinal duralumin members which are of circular section with outwardly-turned tips—something like a letter U whose lower part is trying to be an O. The fuselage is built in three sections, bolted together internally at specially heavy bulkheads.

The wings are built on a multiplicity of spars and have no ribs whatever. The spars, which are spaced about 6 in. apart across the chord, are latticed girders of sheet duralumin pressed out of a single piece, and the spars are coupled together by duralumin strips with in-turned flanges, of such width that one strip fits between each spar. The two strips on each side of each spar are riveted together through the spar. It is not easy to see quite how the final rivetting of the last strip was accomplished—for all rivets are inside the wing—but very obviously it has been accomplished.

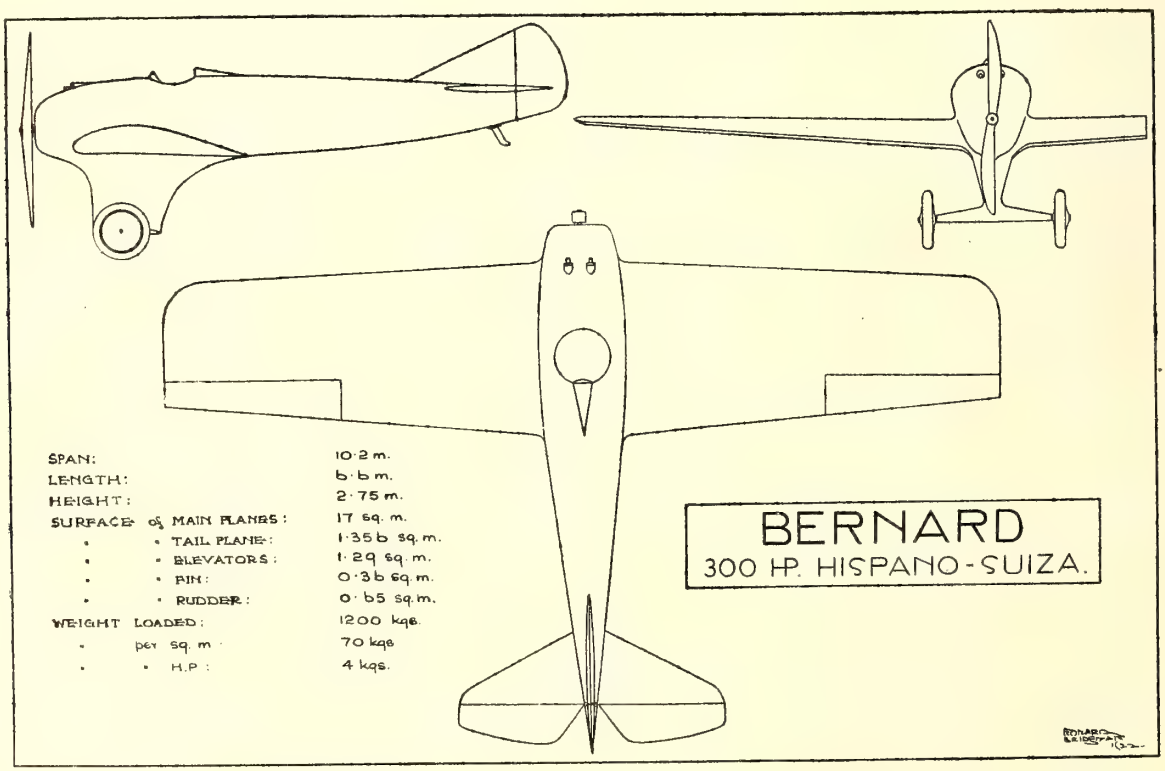
The pilot sits somewhat over halfway back along the chord, and is well above the wing. His view for landing will be somewhat obscured, but otherwise the field of vision is excellent.

The engine is entirely enclosed within the fuselage covering but the purity of line of the machine will be sacrificed by fitting a Lamblin radiator on each side of the leg of the fuselage.

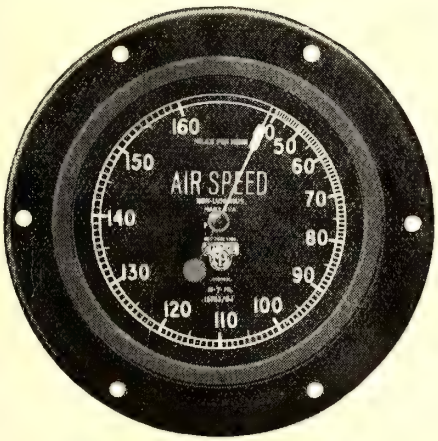
The machine is certainly the cleanest and prettiest machine at the Show—but to some extent this is due to the omission of harmless necessary details such as the radiator, and any provision for moving the control surfaces. Even when complete however the machine will be a strikingly pleasing-looking affair, and one must hope that the internal riveting of the wings is really complete.

SPECIFICATION.

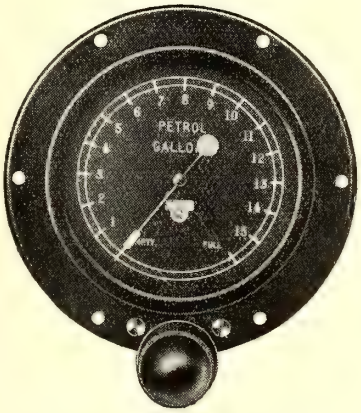
Type ...All-metal fighting monoplane.	Weight loaded 1,200 kg.
Span 10 m. 20.	Engine ...Hispano-Suiza 300 h.p.
Length 6 m. 60.	Wing loading.....70 kg./m².
Height 2 m. 75.	Power loading 4 kg./h.p.
Chord at root 2 m. 10.	Estimated speed ...315 km.h.
Chord at tip 1 m. 58.	Ceiling 5,800/6,000 m.
Wing area 17 sq. m.	



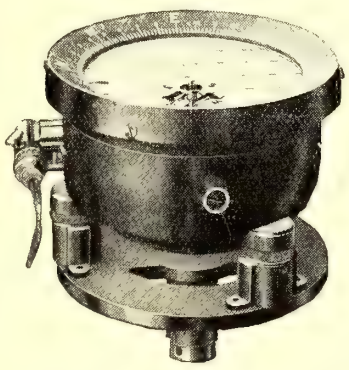
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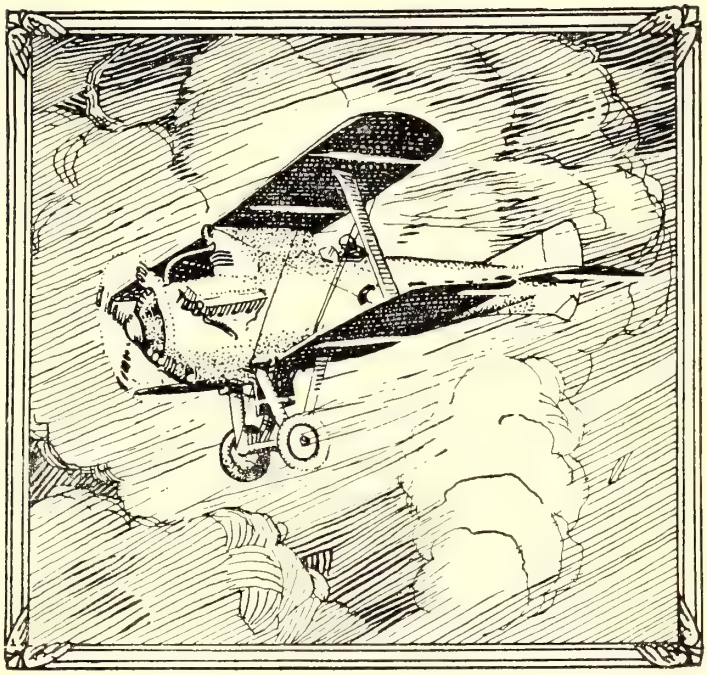
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Campbell Bennett Aperiodic Compass.



Gloucestershire Mars I. winning the Aerial Derby, 1922.

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ENGINES AT THE PARIS SHOW.

ANZANI

The Anzani exhibit covered the whole range of their well-known radial engines—which differ very little indeed from their products of before the war—except that in all cases the inlet valves are now mechanically operated. The types in production are 30 h.p., 3 cylinder; the 50 h.p., 6 cylinders; and the 100 h.p., 10 cylinders. These engines are quite extensively used for sporting and training machines and appear to give excellent service.

FARMAN.

The Farman engines, which have appeared at the Salon now for three successive years, appear to have passed their teething period, for they have it is said passed the French Government type tests, and the Farman firm has it is understood received quite important orders for the 600 h.p. model.

At previous shows three Farman engines were billed to appear—a 200 h.p. 8-cylinder Vee, a 400 h.p. 12-cylinder Vee and a 550 h.p. 18-cylinder broad arrow type. The 200 h.p. model seems to have fallen by the wayside. The 400 h.p. 12-cylinder Vee has been supplanted by an engine of similar power and equal number of cylinders, but is now of the broad arrow type. The general design however is not greatly altered.

The two engines are of similar design, and employ precisely similar cylinder and connecting rod units, valve gear, etc. and differ only in that one has a four-throw crankshaft and four rows of cylinders, and the other a six-throw crankshaft and six rows of cylinders. The cylinders are of equal bore but the 600 h.p. model has an increased stroke.

The cylinders are machined from steel forgings, have welded-on cylinder heads and are made up in two-cylinder blocks each with a common welded sheet steel water jacket. There are four overhead valves per cylinder—two of each kind—operated by rocker arms and push rods from camshafts carried in the top of the crank-case. Aluminium pistons and tubular connecting rods are used.

The big end assembly is of the usual articulated type—the muster rod carrying the white metal journal and being provided with deep flanges on the big end casing between which the two side rods are pivoted.

The engines are fitted with two magnetos and a generator and two coils and distributors, and are equipped with the Farman concentric bevel seduction gear for the airscrew. A series of such gears are standardised and interchangeable one with another, giving a choice of gear ratios of 1 : 2, 1 . 1.84, 1 : 1.67 or 1 : 1.5. Direct drive can also be provided.

SPECIFICATION OF THE FARMAN ENGINES.

Makers Type No.	12 W.D.	18 W.D.
Arrangement	12-cylinder broad arrow	18-cylinder broad arrow
Bore	130 m./m.	130 m./m.
Stroke	160 m./m.	180 m/m.
Cylinder capacity	25.4 litres	43.4 litres
Nominal power	400 h.p.	600 h.p.
Maximum power	520 h.p.	730 h.p.
Normal r.p.m.	2,000 r.p.m.	2,000 r.p.m.
Total weight fully equipped	560 kg.	900 kg.
Fuel consumption per b.h.p. hour	220 grammes	220 grammes
Oil consumption per b.h.p. hour	10 grammes	10 grammes

GNOME AND LE RHONE.

The Société des Moteurs Gnôme et Le Rhône exhibited the well-known Le Rhône engine in the standard 80, 110, and 180 h.p. models—which show no change of any kind In addition they exhibited the "Jupiter" 400 h.p. air-cooled radial, developed by the Bristol Aeroplane Co. for which this firm has now acquired the French rights. The general features of this engine are well known to all readers of THE AEROPLANE, but attracted very considerable attention at the Salon.

The only other novelty on the stand was a two-cylinder air-cooled flat twin of the type used on the A.B.C. motor-cycles, fitted with a reduction gear and an air-screw hub, and described as a 10 h.p. engine for "aviettes."

HISPANO-SUIZA.

The Société Hispano-Suiza showed precisely the same exhibit as that of last year, to wit—one standard 300 h.p. model, Guynemeyer's historic 200 h.p. model known as "Vieux Charles," and one of their 6-cylinder car engines complete with gear-box and clutch.

LORRAINE DIETRICH.

La Société Lorraine des Anciens Etablissement Diétrich et Cie exhibited their 400 h.p. overhead camshaft model, which appears to be called 370 h.p. when installed in an aeroplane, together with several examples of the newer type of engine fitted with push rod operated valves which were first exhibited in 1920 but do not yet appear to have been used in the air.

These later engines are of varying powers, built up from varying combinations of similar cylinder blocks. There is a 24-cylinder broad arrow type of 1,000 h.p., an 18-cylinder broad arrow type of 500 h.p. both of which were shown. They have already been described in connection with the previous Salon.

PEUGEOT.

The Peugeot firm exhibited one of the very few new engines discoverable at Paris. This was a 400 h.p. 16-cylinder engine bearing a very strong resemblance to the Bugatti engine. The Bugatti, it may be remembered, was really four vertical 4-cylinder engines, arranged two side by side, and two end to end. Each block of four cylinders owned its own crankshaft though showing a common crank-case. The two sets of crankshafts which were in line were coupled together, and the two lines of crankshafts were geared to a common air-screw shaft—the two lines rotating in opposite directions.

In the new Peugeot the two lines of cylinders are inclined together at a slight angle, and there are only two four-throw crankshafts. Between their ends—that is in the middle of the engine—there is mounted a pinion, which gears with a spur wheel on the air-screw shaft. This shaft passes through the crank-case of the forward 8-cylinder unit directly above the crankshaft.

As in the case of the Bugatti all valve gear and other auxiliary drives are taken from the centre of the engine instead of from one end. The obvious intention of the designer is to avoid the crankshaft whip, and the risk of torsional vibration to which 8-throw shafts are liable owing to their necessarily great length. But one fancies that if the added weight of the very long air-screw shaft had been intelligently added to a single 8-throw crankshaft a lighter and more compact engine would have resulted.

No particulars as to the dimensions, etc., of this engine could be discovered.

RENAULT.

The Etablissements Renault showed no new engines but confined their exhibit to their well-known standard 550, 450, and 300 h.p. types. These have been so frequently described that it seems unnecessary to enlarge upon their characteristics further.

TALBOT COATALEN.

Two of the well-known Coatalen engines, the "Manitou" of 300 h.p. and the "Matabele" of 420 h.p. were exhibited under the above style. These engines differ in no way from the engines of similar names made in England by the Sunbeam Motor Car Co.—in fact there is reason to believe that the examples exhibited were not actually built by the Sunbeam firm.

SALMSON.

The Société Anonyme des Moteurs Salmson showed a complete range of their well-known type of radial including one engine that appears to be new.

This is a small 9-cylinder air-cooled radial, intended for school work, developing 100 to 120 h.p. and is known as the type A.C.9. In all essential features it is very like the A.B.9 of 200 h.p. exhibited at the previous Salon—and also at this

The essential dimensions of this new model are given hereafter.

For the rest the firm exhibited the A.B.9 air-cooled, a cylinder of 200 h.p., the well-known Z9 of 260 h.p., the A.Z.9 of 300 h.p. and the C.M.18—a two-row edition of the Z9 developing 500 h.p.

SPECIFICATION OF THE SALMSON A.C.9.

Type Radial air-cooled	Maximum power 120 h.p. at 1,600 r.p.m.
No. of cylinders 9	Weight 140 kg.
Bore 100	Fuel consumption per b.h.p. hour 250 grammes
Stroke 130	Oil consumption per b.h.p. hour 25 grammes
Compression ratio 5 : 1	
Normal power 100 h.p. at 1,550 r.p.m.	

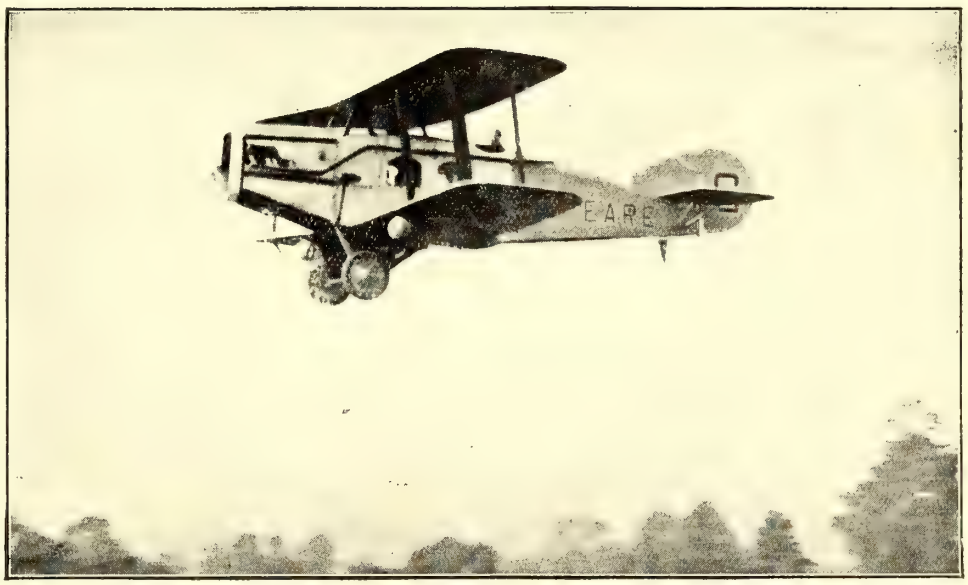
PROFESSOR JUNKERS ON METAL AIRCRAFT.

On January 4th, 1923, at 5.30 p.m., Prof. Hugo Junkers of Dessau will deliver a lecture on Metal Aircraft before the Royal Aeronautical Society at the rooms of the Royal Society of Arts, John Street, Adelphi.

Naturally this is one of the most important events in the history of post-bellum aviation. It is to be hoped that our distinguished visitor will have a good audience, not only good in the matter of numbers but good in the sense that it will appreciate as is deserved the compliment paid to us by Professor Junkers in delivering to his former enemies a lecture on the subject which he has made so peculiarly his own.

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R.A.F. INTELLIGENCE.

Appointments.

Air Ministry, Dec. 8th.

Air Commodore C. L. Lambe, C.B., C.M.G., D.S.O., from Half-pay List to H.Q., C.A. (Supernumerary), 4/12.

Wing/Cmdrs. J. C. Halahan, C.B.E., A.F.C., from R.A.F. School (India) to H.Q., R.A.F. (India) (Supernumerary), 1/11; A. H. W. E. Wynn, O.B.E., from Air Ministry (Dept. of C.A.S.) (D.O.I.), to R.A.F. Depot (Supernumerary), 1/12.

S/Ldrs. C. C. Durston, from R.A.F. School (India) to H.Q., R.A.F. (India) (Supernumerary), 1/11; A. G. R. Garrod, M.C., D.F.C. The notification which appeared in R.A.F. Bulletin dated 28/11 is hereby cancelled. I. T. Lloyd, from No. 2 F.T.S. to command No. 55 Squadron, 25/11; P. A. Shepherd, from No. 267 Squadron (Mediterranean) to command R.A.F. Unit, H.M.S. *Ark Royal*, 15/11.

F/Lts. W. H. Dolphin, from No. 2 F.T.S. to Aircraft Depot, Egypt, 24/11; H. Steele, from R.A.F. Depot to No. 1 Stores Depot (Supernumerary), for duty as Quartermaster (Medical) at the Medical Stores Depot, 27/11; H. E. F. Wyncoll, O.B.E., M.C., from R.A.F. School (India) to H.Q. R.A.F. (India) (Supernumerary), 1/11; T. H. McDowell, from R.A.F. School (India) to H.Q., R.A.F. (India) (Supernumerary), 1/11; W. G. L. Wambeek, from No. 5 Squadron (India) to No. 20 Squadron (India), 27/10; F. A. Norton, from No. 267 Squadron (Mediterranean) to H.M.S. *Ark Royal* (Mediterranean), 13/11.

Major H. K. Clough, O.B.E., from Army (Half-pay List), to R.A.F. Depot, 15/11, and to H.Q., Irak Command, 23/11, on attachment to R.A.F. for two years, for duty as D.A.A.G. in Iraq, 15/11.

From *The London Gazette*, Dec. 5th.

Royal Air Force, General Duties Branch:—The following are granted permanent commissions in ranks stated with effect from dates indicated. Notifications of the dates (indicated in brackets) appointing these officers to shore service commissions, are cancelled: F/Lt. R. T. Leather, A.F.C., Aug. 8/21 (Aug. 16/21). F/Os. H. F. V. Battle, Sept. 16/19 (Sept. 16/19); K. L. Boswell, Sept. 14/20 (Oct. 1/20).

Air Ministry, Dec. 12th.

S/Ldrs. A. J. Miley, O.B.E., from Aircraft Depot, Egypt, to R.A.F. Depot (I.A.) (Supernumerary), 22/11; H. G. Smart, D.F.C., from No. 6 Squadron (Iraq Command) to R.A.F. Depot (Supernumerary), 5/11; F. C. Williams, O.B.E., from H.Q., Iraq Command, to R.A.F. Depot (Supernumerary), 5/11; E. A. B. Rice, M.C., from R.A.F. Depot to command Air Pilotage School (Cadre), 16/12; H. A. Mitchell, O.B.E., from No. 10 Group H.Q. to H.Q., R.A.F., Middle East, 30/11; C. P. Ogden, O.B.E., from R.A.F. Depot to Egyptian Group H.Q., 30/11; A. C. Higgins, from School of T.T. (Men) to No. 1 School of T.T. (Boys) (Halton), 13/12.

F/Lts. R. B. Munday, D.S.C., from H.Q., C.A., to Seaplane Training School (Supernumerary), 11/12; W. H. L. O'Neill, M.C., from No. 2 F.T.S. to No. 100 Squadron, 11/12; C. E. W. Foster, from R.A.F. Depot to R.A.F. Base, Leuchars (No. 205 Squadron) (Supernumerary), 15/12; A. G. Taylor, A.F.C., from No. 5 F.T.S. to No. 1 F.T.S., 16/12; A. Rowan, from School of Naval Co-operation and Aerial Navigation to H.Q.C.A., 29/11; M. J. Cahalane, M.B., from R.A.F. Base, Gosport, to Aeroplane Exper. Estab., 1/12; W. P. Connolly, from Army (R.A.M.C.) to R.A.F. Depot (Supernumerary), on appointment to Permanent Commission as Q.M. and F/Lt. (Medical) on transfer from the Army, 13/10, and to No. 1 School of T.T. (Supernumerary), for duty as Q.M. (Medical) at Halton Hospital, 27/11; F. J. Powell, M.C., from No. 28 Squadron (India) to R.A.F. Depot (Supernumerary), 31/10; M. Thomas, D.F.C., A.F.C., from No. 30 Squadron (Iraq Command) to R.A.F. Depot (Supernumerary), 5/11; B. McEntegart, from No. 2 F.T.S. to No. 4 F.T.S. (Middle East), 30/11; W. E. Hodgins, M.B., from Research Laboratory and M.O.S. of I. to H.Q., R.A.F., India (Supernumerary), 1/12; R. G. J. McCullagh, from Air Pilotage School (Cadre) to R.A.F. Depot, 11/11; A. E. Jenkins, from R.A.F. Depot to Air Pilotage School (Cadre), 11/11.

Lieut. T. C. C. Monckton, R.A., to H.Q., Iraq Command, on appointment as G.O.S.3 (Intelligence), on attachment to R.A.F. for two years, 1/10.

From *The London Gazette*, Dec. 12th, 1922

R.A.F. General Duties Branch:—The following are granted permanent commissions as F/O's., effect from dates indicated: A. W. Cuddon-Davis, Jan 30/20 (since promoted); G. S. Oddie, D.F.C., Dec. 12/19 (since promoted); H. R. Junor, D.F.C., Dec. 12/19; S. D. Macdonald, D.F.C., July 2/20; M. W. Nolan, Sept. 12/19; E. R. B. Playford, Aug. 25/20 (since promoted).

Wound Stripes.

Extract from *The London Gazette*, Nov. 28th, 1922.

The Air Ministry announces that His Majesty the King having signified his approval, it is notified that the wearing on uniform of wound stripes and silver badges is to be discontinued. (*Note*: The wearing of chevrons in the R.A.F. was discontinued in July, 1920.)

R.A.F. SPORTS AND PASTIMES.

Uxbridge.

Cricket Resumé.—As the figures show, the Uxbridge Depot of the R.A.F. had a full programme for the season, which concluded on Sep. 16th. Only two were abandoned. At the beginning of the season the team showed great promise, but owing to the exigencies of the Service no fewer than 52 players had taken part in first eleven fixtures. In view of the continuous changing in the team the ultimate figures are good. Perhaps the best performance was against Leavesdon Mental Hospital team. In this match the visitors batted first, declaring with 240 for eight, to which the Depot responded with 259, F/Lt. Wigglesworth and Sjt. Kinshott registering respectively 80 and 83. The next outstanding performance was that of F/O. Walker, who scored 134 against St. Mary's Hospital, 130 being made in an hour.

By August F/Lt. Clarke had 900 runs to his credit, but the remaining 100 came along in small quantities; at one period he had an average of 40. As he tops both batting and bowling he has every reason to be proud of his work. The wicket-keeping of AC. Buchanan maintained the high standard expected of him. One of the features of the matches was the success of L/AC. Wood, who soon became a first wicket batsman by reason of his sound defensive play. Many second eleven players were needed to fill vacancies, and did well; in this connection ACs. Garven, Parkin, and Quarrie should be useful next season. In Sjt. Ripley the team found a brilliant field and capable bat.

First Eleven.—Played 37; won 13; lost 18; drawn 6.

Second Eleven.—Played 11; lost 6; won 5.

Annual Novices' Boxing Competition.—This important annual event took place in the Gymnasium at Uxbridge on the 28th Sept. Preliminary bouts were decided in the afternoon.

Results:—Bantam-weight: AC. Greeno beat AC. Jones. Both opened with extreme caution and were called to order by the Judge with instructions to have a go for it. This had the desired effect, Jones was always trying but the winner was the more skilful, his persistent left gaining him the award. Greeno should cultivate a punch.

Light-weights: AC. Kyte beat AC. Alexander. Alexander has a rushing swinging style and bores in from all angles. These whirlwind methods puzzled Kyte. In the second round Kyte got wise to these and neatly side stepped meanwhile scoring with his left.

Feather-weights: AC. Crammond versus AC. Turner. The latter retired at the end of the first round having damaged his right. Crammond has a good knowledge of the game, has a really good left and a heavy right.

Middle-weights: AC. Clamp versus AC. Rennie. After an early caution for hitting with the open glove Rennie was disqualified for persistent "flapping."

Welter-weights: AC. Graham beat AC. Bowes in the first round. Bowes showed good form in his previous bouts but could not keep out the damaging digs of Graham.

Best losers' prizes were awarded to AC. Newman, AC. Moss, and AC. Mullins. Mullins went very near to winning the Light-weight and would do well to train to a weight. In this competition he got too much off in a short time and weakened in consequence.

Wing/Cmdr. P. K. Wise, C.M.G., presented the prizes. Judges, S/Ldrs. Parkin and Darley. Timekeeper, F/O. Titmas.

The R.A.F. Band played during the intervals

Rugby Football:—The Uxbridge XV results up to the end of Oct. were as follows: Wins Rosslyn Pk. 14—3, R.A.F. Records 8—0, Civil Service 29—8, Harrow 22—5, Cadet College, Cranwell 18—6, Grenadiers 17—6, Henlow 21—6. Their first defeat of the season was on Oct. 28th when they were beaten by Haileybury by 12 points to 6.

Hockey:—The Depot made an excellent start this season winning 3 matches and drawing 3 but they were beaten at High Wycombe on the 28th Oct. by 3 goals to 1. The R.A.F. trials took place on the 25th in which F/Lt. Duminy (Depot) played brilliantly at left half for the "Whites."

R.A.F. Parachinar.

Association Football.—28 Sqdn. played "A" Co. the Border Regt. on the City ground on August 8th, the former team running out winners by one goal to nil. Play during the first half was mostly in mid-field. In the second half the Air Force forwards got away and the only goal of the match was scored by A. C. Willers.

On August 12th the R.A.F. Station met the 1st Batt. Border Regt., the soldiers winning by one goal to nil. The Borderers' goalkeeper proved himself again and again a very hard man to beat. Some good work for the R.A.F. was done by Cpl. Masserella and AC's Marshall and Butler throughout the game.

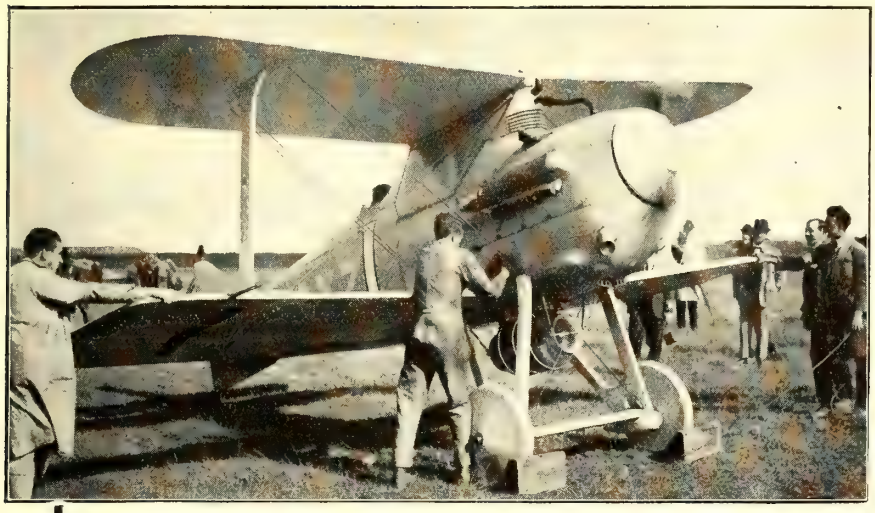
Played on the City ground on August 15th between 28 Squadron and R.E. Signals, this match resulted in a draw of one goal each. The R.A.F. opened the scoring about midway through the first half, after a melée in front of the Signals' goal, through AC. Saunders. On the change of ends, the Signals pressed hard and after about twenty minutes' play were able to equalise.

The 2nd XI. of 28 Sqdn. R.A.F. played the 22nd M.T. Coy. on September 14th, and after quite an exciting game ran out winners by 3 goals to 1.

This team also met the "Signals" of the Border Regt. on September 15th, and were leading by 2 clear goals at half-time, when play had to be disbanded owing to heavy rains. It was resumed on the 16th, when after a very keen and exciting game 28 Sqdn. lost by 1 goal to 0.

Hockey.—During the week ending August 12th the R.A.F. Station Hockey team played the 1st Batt. Border Regt., a very strong team, and beat them by one goal to nil. On the 11th they played the 56th Rifles on the latter's ground and won by 3 goals to 2 after an exciting game.

The match between 28 Squadron and 108th Pack Battery, played on the 18th, proved to be rather a good game, the latter team running out winners by 3 goals to 1. The R.A.F. were the first to score, through AC. Bilner during the first



Mars I. "Bamel," 450 h.p. Napier Lion with Lamblin Radiators.

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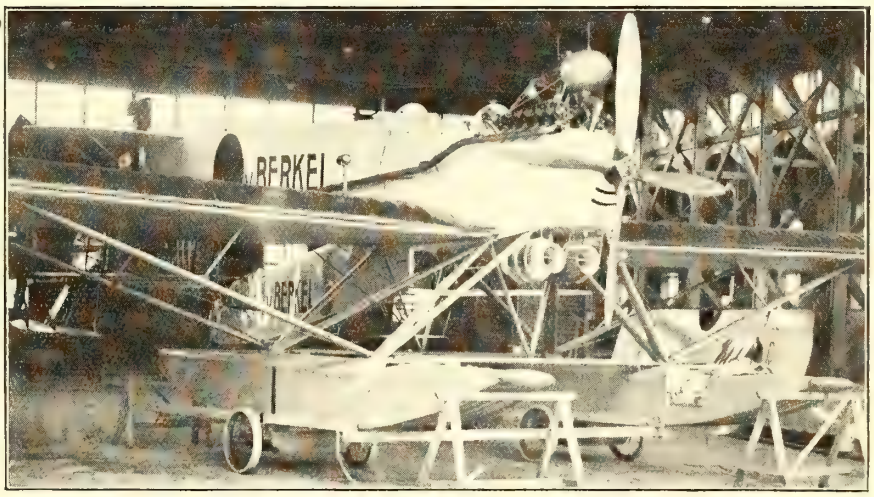
SUCCESSES.

Leon Morane Challenge, 1920.
All Speed and Altitude Records.
Coupe Dentsch de la Meurthe, 1920.
Antwerp Olympiad Speed Cup, 1921.
Coupe Gordon-Bennett, 1920.
Italian Grand Cup, 1921 – 1922.
Pulitzer Trophy (United States), 1921.
British Speed Record, 1922.
Aerial Derby, 1922.
Marine Speed Record, sur glisseur, 1922.
Grand Prix de l'Aero Club de l'Ouest, 1922.
Belgian Automobile Grand Prix, 1922.
Coupe Deutsch de la Meurthe, 1921 - 1922.

AIR LINES.

London – Paris. **Paris—Prague—Warsaw.**
Paris Constantinople. **Toulouse—Casablanca.**

Colonial Seaplane "Van Berkel" (Rotterdam), 360 h.p. Rolls-Royce, with Lamblin Radiato s



10, Rue de Copenhague,
PARIS.

half. In the second half, however, the Pack Battery livened up, and were able to score three goals before the final whistle blew, this was partly due to the loss of one of the backs L/AC. Hobbs, who was injured during this half, and had to be taken off the field.

Played on the Kurram Militia ground on September 12th between the R.A.F. Station and "D" Co. Border Regt., this match ended in a win for the former by 6 goals to 4. Play throughout the game was very fast, both goalkeepers being kept busy. AC. Taylor for the R.A.F. brought off some very neat saves during the latter part of the game. Mention is also made of L/AC. Davies and AC. Douglas, who also played well for the R.A.F.

A match against the Kurram Militia was played on the latter's ground on September 16th, and ended in a win for the Kurrams by 6 goals to 1, after a very poor show by the R.A.F., who were without one or two of their regular players. L/AC. Davis scored the R.A.F. goal just before full time.

Boxing.—The Kohat District Boxing Meeting Finals were staged in the Fort, Parachinar, on August 12th.

Teams from 1st Bn. the Border Regt. and No. 28 Squadron, R.A.F., competed for the Team Cup, and, in addition, there were several special fights. A very fine series of fights resulted and the clean sportsmanship which prevailed throughout the bouts was generously remarked upon by Col.-Comdt. Coningham in presenting the prizes at the conclusion of the meeting.

The following is the result of Team fights :—

Middle Weights.—(Winner), AC.2 MacDonald (R.A.F.). (Runner-up), L/Cpl. Fowler (London). Won in first round. A clever boxer and very hard hitter.

Welter Weights.—(W.), Pte. Bell (Border). (R.U.), A.C.2 Dent (R.A.F.). Won on points, slow bout of in-fighting.

Light Weights.—(W.), AC.2 Asquith (R.A.F.). (R.U.), Pte. Curran (Border). Won on points, a fast and clever bout.

Fly Weights.—Pte. Lloyd (Border). AC.1. Palmer (R.A.F.). Won on points.

Special Fights :—

Welter Weights.—Pte. Bell (Border). AC.2 MacDonald (R.A.F.). Won on points. Loser avoided punishment by hugging.

Bantam Weights.—AC.1 Wolfson (R.A.F.). Pte. Batty (Border). Won on points. Very good fight.

The Team Cup was won by No. 28 Squadron, who finished 10 points ahead of the runners-up, "HQ." Coy., Border Regt.

The W.R.A.F Bazaar.

The bazaar in aid of the W.R.A.F. Old Comrades Association funds which was held on December 2nd was a huge success. Lady Trenchard, who was introduced by Dame Helen Gwynne-Vaughan, performed the opening ceremony and said many kind things about the Association. She went on to say what a good show the R.A.F. is and how proud the Air Chief-Marshal is of them, which remarks were naturally greeted with loud applause.

A vote of thanks was proposed by Dame Helen, seconded by Mrs. Pratt-Barlow and carried with musical honours, during the singing of which Miss Sayers (1920 type) presented Lady Trenchard with a bunch of violets. Lady Trenchard, Dame Helen Gwynne-Vaughan and Air Chief-Marshal Sir H. M. Trenchard then made a complete tour of the Fair and started an enthusiastic wave of "buying."

Among the best things in the fair was an R.A.F. band from Uxbridge which played almost incessantly from 14.30 hours to 22.30 hours alternately in the main hall and in the tea room. When they might with every reason have packed up and gone home they stayed and played cheerfully for a few enthusiasts to dance.—C. M. MCA.

A W.R.A.F. Dinner.

A dinner was given on December 16th at the Ex-Service Women's Club by former officers of the W.R.A.F. at which Dame Helen Gwynne was the principal guest. Replying to the toast of "Our Guests" Dame Helen said that she was charmed to be the guest of so many of her former officers. She was very grateful for the help she had received on her recent political campaign in North Camberwell which had been so nearly successful. She added that she had been asked to stand again. (Cheers.) After telling some very amusing stories of the Camberwell election she said that she had not been an easy commandant to serve under—(laughter)—but that she expected a great deal of her officers. She had not been disappointed. She also said that in the event of future wars the authorities would not be likely to forget that there are 80,000 women in this country, trained and disciplined by previous service, who could be called upon at any time and who would be found ready.—C. M. MCA.

THE CLAIM FOR THE RETURN OF OVER-PAID GRATUITIES.

Judgment in the appeal of Holt and Co. Army and Air Force agents against the decision of Mr. Justice Lush in the case Holt and Co. *v.* Markham was given in the Court of Appeal on Tuesday, December 12th.

The original case—reported in The Aeroplane of August 2nd—related to the alleged overissue by Holt and Co. to Col. R. G. L. Markham of the sum of £277 12s. in respect of gratuity. Col. Markham prior to the war had been an engineer officer of the Royal Navy, and at the outbreak of war he was on the emergency list of the Royal Navy. He joined the R.N.A.S., was afterwards transferred to the R.A.F., and on demobilisation he was paid gratuity as a temporary officer.

The Air Ministry refused to sanction this payment on the ground that as an officer on the emergency list Col. Markham was entitled only to gratuity at a rate less than that applicable to temporary officers, and reclaimed the difference from Holt and Co.

Holt and Co. in turn claimed the return of the overissue from Col. Markham, on the ground that the overissue was due to an error in fact, in that they had not realised Col. Markham's position.

Mr. Justice Lush gave judgment in favour of Col. Markham, and from this decision Holt and Co. appealed.

In giving judgment on the appeal, the *Times* reports that Lord Justice Banks said :—The plaintiffs sought to recover from the defendant upon the ground that they had paid it under a mistake of fact. In order to decide this there were four matters to be inquired into—(1) whether there had been a mistake at all as regards the position of the defendant; (2) whether the plaintiffs had made the payment under the mistake; (3) assuming that there had been a mistake, had the payment been made under a mistake of law or of fact; and (4) whether there were any circumstances which rendered it equitable that the defendant should pay the money back. The position or status of the defendant was no doubt one of considerable difficulty by reason of the fact that it was difficult to ascertain which of the many regulations which had been issued applied to him at any particular moment. In August, 1914, the defendant had not been called up, but he had offered his services to the Air Department, and on August 21st he received a commission as a temporary officer in the Royal Naval Air Service. It had therefore been urged on behalf of the defendant that under the circumstances he was not on the emergency list, but had received a commission as temporary officer and was therefore entitled to all the pecuniary benefits as such officer. On April 1st, 1918, the defendant was accordingly transferred to the Royal Air Force, where he remained until after the termination of the war. The question was what was his position as regards his pay and gratuity under the various orders and regulations which had from time to time been made between August, 1914, and the date of his commission in the Air Force.

His Lordship said that if the money had been paid under a mistake of fact it was material to know what in fact had happened. Having regard to the evidence and to the correspondence, it seemed to him to be manifestly plain that there had been no mistake of fact at all. It was clear that the plaintiffs had not realised the defendant's position under the regulations and orders. They had information in their office that the defendant was on the emergency list, but it was clear that they acted under a misapprehension of his exact status under the complicated orders and regulations which had been made. In his judgment the plaintiffs had failed on the first point; they had not acted under a mistake of fact. It was a case of misapplication of the true construction of the orders and regulations governing the payment. As regards the fourth point, he thought the case fell within the principle laid down in Skyring *v.* Greenwood (4 B and C., 281). Under these circumstances he agreed with the result arrived at by Mr. Justice Lush, and the appeal must therefore be dismissed.

Lord Justice Warrington and Lord Justice Scrutton delivered judgments to the same effect, dismissing the appeal.

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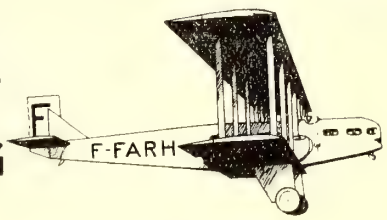
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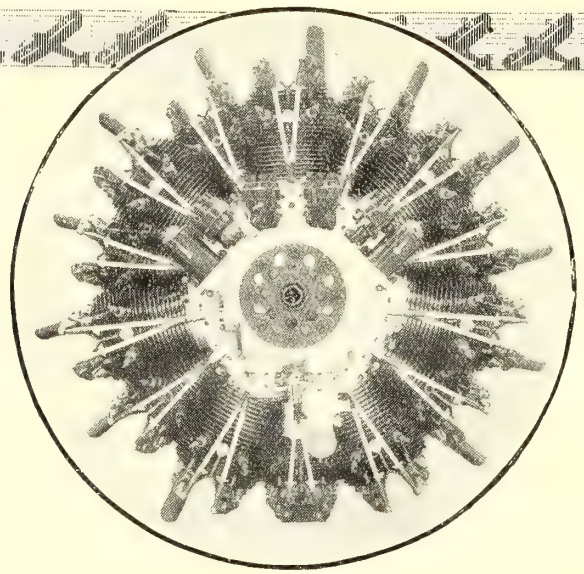
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A BENEFIT FOR CANADA.

His many friends on the technical and seagoing side of aviation will be glad to hear that Major D. C. M. Hume, A.M.I.E.E., A.F.R.Ae.S., M.I.Ae.E., formerly R.N.A.S. and at present of the Seaplane Design Department Air Ministry, has been appointed designer to the Laurentide Air Service at Montreal, Canada.

Major Hume's long and intimate experience of flying boats and their habits should make him a most valuable asset to the Laurentide Company which one judges from his appointment is extending its activities from being purely an air service to being a manufacturing concern as well. Major Hume sails for Canada at the begining of January and will take with him the best wishes of all with whom he has come in contact in this country.

A GOOD NOEL.

The Lieutenant-Aviator Louis Noël, writing from Calea Victorici 117, Bucharest, on December 14th, says: "As I cannot write to all, please tell to my dear old English friends (they are all dear to me) how often I think of them and wish them the best luck possible."

Our old friend Louis Noël is now chief of "Noel Société Anonyme de Traction Mecanique," the biggest motor concern in Roumania. For a man of his age (he is over 50) and with all his war experience to have succeeded in commerce as he has done in these few years since the war is almost as remarkable an achievement as was his work in the war, which won for him practically every known decoration of all the Allied armies.

All his old English friends reciprocate heartily his good wishes.

PERSONAL NOTICES.

MARRIAGES.

BESSETT—RYCROFT.—On October 5th at Aughton, near Ormskirk, Lancs., Capt. Claver Victor Bessett, late R.N.A.S and R.A.F., of New Bedford, Mass., U.S.A., to Marie Rycroft, late Chief Section Leader (S.W.), W.F.N.S., younger daughter of Mr. and Mrs William Rycroft, of "Rock Cottage," Aughton, and grand-daughter of the late Capt. Lyman Danford Oby, of Ohio, U.S.A.

THORNTON—PIKE.—On Dec. 11th, at St. Saviour's, Chelsea, by the Revd. E. D. L. Harvey, O.B.E., D.L., F/Lt. Edward Thornton, R.A.F., only son of the late Edward Thornton, Minister in H.M. Diplomatic Service, and of Mrs E. D. L. Harvey, to Marjorie Gabrielle, only daughter of Mr. W. R. Pike.

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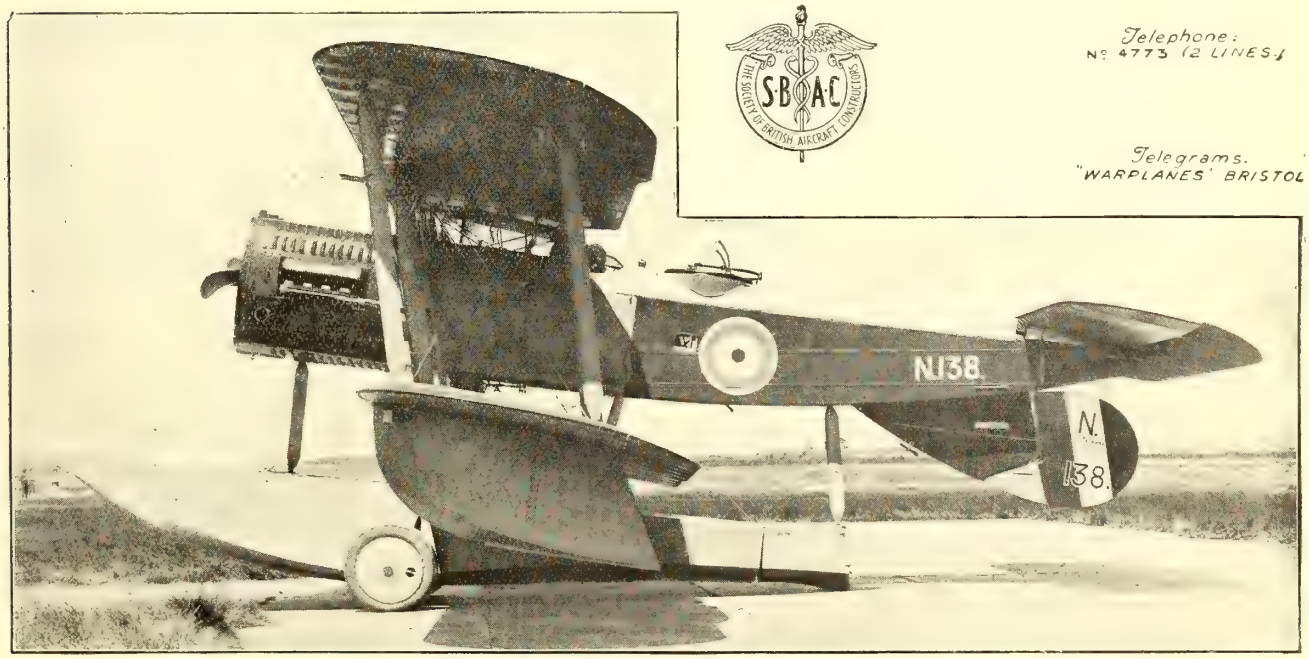
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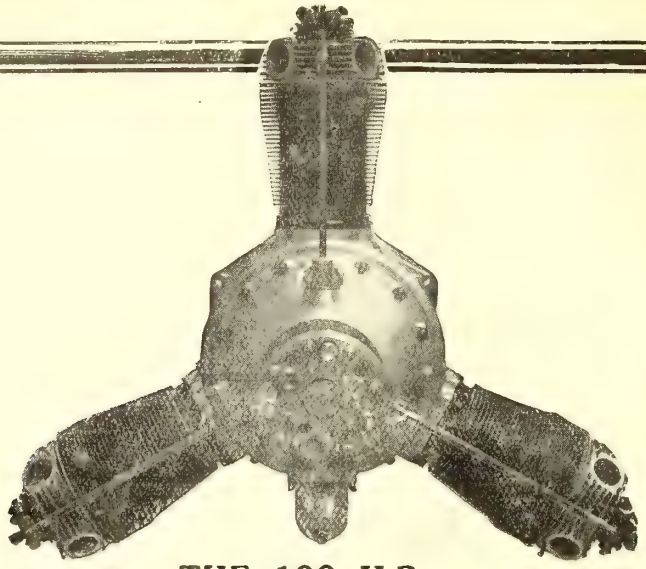


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